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MICHIGAN
DAIRYMEN'S ASSOCIATION

1911

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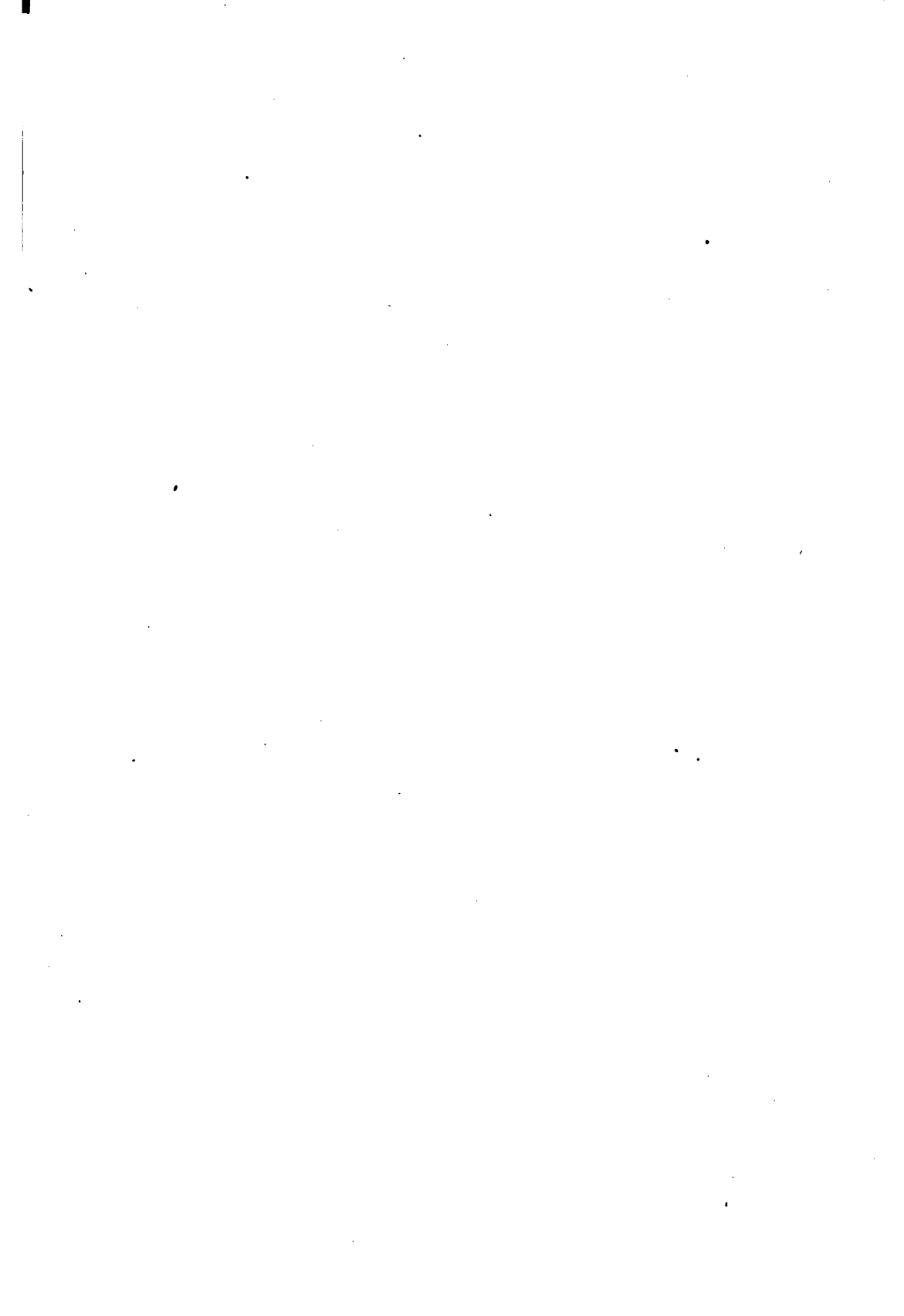


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TWENTY-SEVENTH ANNUAL REPORT
OF THE
MICHIGAN
DAIRYMEN'S ASSOCIATION

JULY 1, 1909, TO JUNE 30, 1911

COMPILED BY
E. S. POWERS
SECRETARY

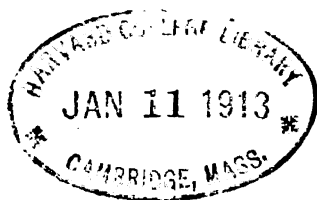


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1911

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LETTER OF TRANSMITTAL.

Michigan Dairymen's Association,
Office of the Secretary.

Hart, Mich., August 1, 1911.

To His Excellency, Chase S. Osborn, Governor of the State of Michigan :

I have the honor to submit herewith, as required by statute, the accompanying report of the Michigan Dairymen's Association, showing the receipts and disbursements for the year; also papers and stenographic report of the Twenty-seventh Annual Convention held in Bay City, Feb. 21, 22, 23, and 24, 1911.

E. S. POWERS,
Secretary.

OFFICERS OF THE
MICHIGAN DAIRYMEN'S ASSOCIATION.

July 1, 1910, to June 30, 1911.

PRESIDENT.

T. F. Marston.....Bay City

VICE PRESIDENT.

F. H. Vandenboom.....Marquette

SECRETARY AND TREASURER.

E. S. Powers.....Hart

DIRECTORS.

Henry RozemaFremont
William H. Bechtel.....Caro
Charles R. Webb.....Chesaning
R. F. Frary.....Lapeer
Claude A. Grove.....Litchfield

CHEMISTS.

Dr. C. E. Marshall.....Agricultural College
Victor C. Vaughan, Dean of U. of M.....Ann Arbor

MEMBERS OF THE MICHIGAN DAIRYMEN'S ASSOCIATION.

LIFE MEMBERS.

Bates, Hon. E. N.	Moline	Smith, Director C. D., Piracicaba, Province of St. Paul, Brazil, South America	
Haven, E. A.	Bloomington	Stowe, E. A.	Grand Rapids
Horton, Hon. G. B.	Fruit Ridge	Vaughan, Victor C., Dean of U. of M.	Ann Arbor
Lillie, Colon C.	Coopersville	Warner, Gov. Fred M.	Farmington
Marshall, Dr. C. E.	East Lansing	Wilson, S. J.	Flint
Monrad, J. H., Copenhagen, O.	Denmark	Wright, A. W.	Alma
McBride, James N.	Burton	Webb, Chas. R.	Cheesaning
Rabild, Helmer, Dairy Division	Washington, D. C.		
Frery, R. F.	Lapeer		

ANNUAL MEMBERS.

July 1, 1910, to June 30, 1911.

Armstrong, N. B.	Pontiac	Bursland, Hans.	Marlette
Arnold, A. N.	Bay City	Burgoon Creamery Co.,	Burgoon, O.
Austin, Eugene	Coopersville	Burroughs, H. L.	Owosso
Ayers, Henry A.	Elsie	Butler, R. A.	Berville
Babcock, N. S.	Bay City, Sta. A	Candkish, Frank E.	Goodrich
Bades, H. C.	Saginaw	Chase, C. E.	Cass City
Bartlett, C. S.	Pontiac	Chetola Farm, R. R. 5.	Pontiac
Barton, David, R. R. 5.	Yale	Clark, J. Frank, 500 Willis Ave.,	Detroit
Batten, John	Avoca	Clifford, A. E.	Unionville
Bechtel, W. H.	Caro	Cobb, Lavern	Clarkslake
Benson, C. C.	Lansing	Cobb, H. W.	Hadley
Benteley, D. A.	Saginaw	Cole, L. D.	Blaine
Berger, Ferdinand	Bay City	Coloma Creamery Assn.	Coloma
Best, Wellington	Vermontville	Colvin, I. E.	Hudson
Bill, F. C.	Bay City	Compton, A. H.	Chicago, Ill.
Bishop, Jack	Buchanan	Conason, M.	Saginaw
Bivens, J. S.	Hubbardston	Conklin, M. J.	Saginaw
Blood, F. J.	Chetak, Wis.	Constantine Creamery Co.	Constantine
Boehmecke, F. E.	New York	Coon, F. H.	Hemlock
Bovee, Windsor	Henderson	Coopersville Co-op. Creamery Co.	Coopersville
Bosch, Chas., R. R. 3.	Hudsonville	Cook, T. A.	Brant
Brice & Co., W. R.	Philadelphia, Pa.	Covell, C. A. L.	Charlotte
Britten, A. H.	Goodrich	Cowan, W. A.	Bay City
Brown, Chas. W.	East Lansing	Croftfarm, Roy.	Saginaw
Brownell, George H., 70 Larned St.	Detroit	Curtis, Clade E.	Cedar Lake
Brumm, R. G.	Nashville	Davis, W. P.	Chicago, Ill.
Burger, C. F.	Saginaw, W. S.	Davis, William	Washington
Burnett, W. S.	Goodrich	Dear, Chas. H.	Novi
Bursbon, Harry	Mt. Clemens		

Dear, W. A.	Perrinton	Herroman, Duzell	Millington
De Graw, Wm. J.	Lamb	Herman, W. G.	Burt
De Long, G. V.	Pinconning	Hildner, R. G.	Richville
Demuth, E.	Albion	Hill, N. T.	Davison
Dent, F. D.	Hanover	Hill, Thomas	Detroit
Deihn, J. J.	Remus	Hillman, B. A.	Metamora
Dobbin, John	Newaygo	Hoffman, J. B.	Oakley
Doten, J. S.	Hubbardston	Hopkins, R. F.	Wayland
Ebmeyer, John	Dorr	Hopkins, L. W.	East Lansing
Eldridge, Fred	Breckenridge	Horton, German	Bay City
Ellis, O. A.	Rochester	Howe, Martin	Evart
Ellwanger, R. J.	Grand Rapids	Hubbardston Creamery Co.	Hubbardston
Elmer, E. O.	Devereaux	Hunderman, J. D.	Metamora
Elhurst Creamery Co.	Owendale	Hupp, G. C.	Birmingham
Emerson, C. M.	Saginaw	Huskird, J. C.	Metamora
Erwine, T. E.	Clare	Hustler, A. E.	Tuscola
Etiler, Frank C.	Elkton	Hutch, L. N.	Big Bay
Farley, Chas. K.	Almont	Imperishable Silo Co.	Huntington, Ind.
Faught, E. W.	Grass Lake	Jenkosi, F. S.	Hilliards, Ind.
Faver, Henry H., R. R. 2	Zeeland	Jennings, R. E.	Paw Paw
Fay, Fred	New York	Jenns, Louis H.	Grand Rapids
Felske, Arthur	Mt. Clemens	Jensen, M.	Merrill
Ferrell, Walter C.	Gladwin	Kane, Wm. J., 5934 Spruce	Philadelphia, Pa.
Ferguson, F. L.	Coleman	Keeworth, C. H.	Coleman
Fiens, John E.	Fremont	Keniff, Robert	Fremont
Fillmore Center Creamery Co.	Fillmore Center	Kerr, L. R.	Sandusky
Flannigan, F. J.	Orleans	Kerr, Mrs. L. R.	Sandusky
Freeman, Leonard	Fenton	Keil Woodenware Co.	Keil, Wis.
Freeman, William	Midland	Kimball, W. D., 513 Fernwood Ave.	Toledo, O.
Frightner, John E.	Amble	Kimball, George H., R. R. 5	Pontiac
Frary, R. F.	Lapeer	Kinch, Frank	Grindstone City
Fry, C. S.	East Lansing	King, Clyde E.	Concord
Gera Creamery Co.	Gera	King, Frank C.	Pontiac
Glasser, G. H.	Fostoria	Kolk, Dirk	Fremont
Glasser, J. H.	Kalamazoo	Konkle, John	Caledonia
Glasure, Marshall	Sterling	Krouse, Chas.	Hart
Gilbert, J. B.	Pontiac	Ladd, J. H.	Lansing
Goodrich Dairy Assn.	Goodrich	Ladd, John W.	Saginaw
Gordon, George F.	Midland	Lakeville Creamery	Mosherville
Grant Creamery Co.	Grant	Lamos, Mark	Barryton
Grape Factory	Ida	Lamos, E. M.	Barryton
Greer, H. A.	Mayville	Langley, George J.	Port Huron
Gregory, M. C.	Unidalle, N. Y.	Lawrence Creamery Co.	Lawrence
Gardner, Greenleaf	Chicago, Ill.	Leibum, Chris.	Orleans
Grove, Claude A.	Litchfield	Levandowski, John	Bay City
Hall, James B.	Saginaw	Liverance, W. B.	East Lansing
Hall, John	Detroit	Long, P. D.	Grand Rapids
Hall, George	Fremont	Lucas Farmers Creamery	Lucas
Hall, Walter	Owosso	Lyon, Jerry D.	Buchanan
Hadley Dairy Assn.	Hadley	Malone, A. M.	South Bay City
Hadley, B. F.	Marlette	Malone, J. C.	Burt
Hagadorn, S.	Fenton	Monrovia Creamery Co.	Monrovia, Ind.
Halpin, H. C.	Detroit	Marston, T. F.	Bay City
Harding, J. E.	Vestaburg	Martin, B. C.	Whitecloud
Harriman, J. C.	Blissfield	Mead, F. A.	Alma
Harrison, Floyd W.	Bay City	Meiselback, Oscar, R. R. 2	Bay City
Hart, F. T.	Pigeon	McCafferty, Ray	Romeo
Hatter, Elmer	Milan	McCaudless, G. E.	Grand Rapids
Haven, Davis	Bloomington	McCoy, D. N.	Tuscola
Haverman, Henry	Holton	McDonald, John J.	Owosso
Hayes, R. A.	Otisville	McIntosh, C. J.	Applegate
Hebert, J. E.	Caseville	McLean, W. C., 105 Pitcher St.	Detroit
Heck, C. F.	Gera	McNeil, F.	Fostoria
Hendershotte, Floyd	Parma	Milles, G. R.	Bay City
Henry, B.	Omer		

Miller, J. C.	Saginaw	Sass, H. J.	Blanchard
Mills, John W.	Peck	Sauber, W. A.	New Haven
Milkamp, John, R. R. 5.	Fremont	Scamehorse, John.	Bloomington
Miner, John.	St. Louis	Schrew, John.	Fremont
Mitchell, E. J.	North Branch	Schmidt, Jacob.	Holton
Monroe Butter & Cheese Factory.	Monroe	Schwanback, E. J.	Utica
Montgomery Cheese Factory.	Montgomery	Scotts Creamery Co.	Scotts
Morgan, John W.	Saginaw, W. S.	Seeley, L. E.	Imlay City
Mossner, P. C.	Sparta	Seibert, A. C.	Nashville
Mozealous, M. J.	Detroit	Seidel, Martin.	Saginaw, W. S.
Munger, H.	Reese	Shaver, John G.	Bay City
Munger, W. F.	Reese	Shaver, A. I.	Omer
Munger, George.	Freeland	Shaw, Chauncey E.	
Murphy, Morris, 299 S. Water St.	Chicago, Ill.	Sheil, D. W.	Hillsdale
		Shilling, Sam.	Chicago, Ill.
Murray, C. A.	Midland	Simmons, John.	Alpena
Murray, R. A.	Byron	Shipman, D. W.	Caro
Murry, Joseph.	Auburn	Smith, F. N.	Hillsdale
Muir, William.	Imlay City	Smith, Ralph.	Vestaburg
Myer, Martin H.	Madison, Wis.	Smith, C. J. W., 340 Commonwealth Ave.	
Myers, George.	Reman		Detroit
Knepper, William.	Deford	Smith, August.	Burnips Corners
New Haven Elgin Creamery Co.	New Haven	Smith, John M.	Sterling
Niles Creamery Co.	Niles	Smith, Henry M, 57 Elmhurst Ave.	Detroit
Norway Valley Creamery Co.	Athens	Snider, W. H.	Elkton
Nyenhuys, Jac.	Forest Grove	Sondergaard, Hans T., 25 S. Water St.	
Ontonagon Creamery Co.	Ewen		Philadelphia, Pa.
Otter, Chas. H.	St. Clair	Stakes, Fred O.	Middleville
Oviatt, L. N.	Bay City	Stack, J. L.	Baltimore
Pahl, William.	Hemlock	Stafford, F. E.	Port Huron
Partch, C. M.	Armada	Sterling, J. C.	Monroe
Parker, F. E.	Lansing	Stoeltmy, Otto.	Kiel, Wis.
Parker, C. H.	Saginaw	Stroebil, S. M.	Hemlock
Peterson, Soren.	Reading	St. John, A. F. W.	Columbus, O.
Peterson, E. J.	Muskegon	St. Joseph Valley Creamery Co.	St. Joseph
Phillips, J. F.	Pigeon	Snay, O. E.	Jennison
Pierce, Archie R.	Scotts	Sunderlin, Ray E.	Sunfield
Pickens, H. F.	Saranac	Swanson, H. G., R. R. 3.	Grant
Pickleman, George.	Pinnebog	Teall, H. C.	Trenton
Powers, Russell.	Ravenna	Toole, J. O.	Merrill
Plumbhoff, F. W.	New Era	Torsion Balance Co., 92 Reed St.	New York
Price, C. R. S.	Birmingham	Thumb Creamery Co.	Caro
Pullen, G. J.	Leslie	Tromley, A.	Hemlock
Purtell, John.	Kawkawlin	True, George A.	Armada
Rancholoz, John C.	Hemlock	Truts, J. W.	Mayville
Randall, A. M.	Vestaburg	Union Cheese Co.	Frankenmuth
Raven, W. F.	East Lansing	Unionville Creamery Co.	Unionville
Reavey, B. B.	Akron	Urban, John.	Bay City
Reed, Chas. P.	Howell	Van Allsburg, P.	Bay City
Reed, Wm. W.	Bancroft	Vandenboom, F. H.	Marquette
Reid, I. K.	Cass City	Van Slyke, C. E.	Durand
Reist, Irving.	Maple Rapids	Vasold, Oscar.	Midland
Renbarger.	Niles	Vasold, Walter.	Zeeland
Richter, Chas.	Bay City	Vivian, Andrew.	Monroe
Rider, George T.	Almont	Vugtveen.	Holland
Riley, Chas. F.	Metamora	Waite, L. C.	Coldwater
Riley, I. H.	Vassar	Walker, J. C.	Detroit
Riley, R. M.	Shabbona	Walker, J. A., 700 S. Clinton St.	
Robbins, D. F.	Port Huron		Chicago, Ill.
Rohrer, M.	Grass Lake	Wallenzie, L.	Agnew
Rouse, John E.	Prescott	Ward, S. A.	Ypsilanti
Rosema, Henry.	Fremont	Warner, J. W.	Grand Rapids
Rothrock, Wm. S.	Hadley	Warren, C. J.	Battle Creek
Rozenburg, A. S.	Brown City	Wattles, Harry.	Troy
Ruff, J. F.	Port Huron	Watkins, G. R.	Goodrich
Salvenar, C.	Frankenmuth	Weares, Harold.	Cass City

Webb, C. R.....	Chesaning	Wilder, W. A.....	Bay City
Weber, John A.....	Grass Lake	Wilder, James.....	
Webster, T. E.....	Bay City	Willett, Wendall.....	Adrian
Wegener, Harry.....	Bay City	Willie, M. H.....	Caro
Weigle, John.....	Bay City	Windacre Farm, Inc.....	Homer
Welch, Albert E.....	Otisville	Winters, A. L.....	Port Huron
Wells, Frank D.....	Rochester	Withey, Frank.....	Freeland
Westra, Abel.....	Fremont	Worden Co-op. Creamery Co.....	Salem
Whitbeck, C. O.....	Flint	Wright, A. L.....	Bad Axe
Whitby, N. J.....	Kalamasoo	Young, John.....	Yale
Whitehead, Otis.....	Coleman	Zimmale, Norman.....	Pigeon

PROCEEDINGS
OF THE
TWENTY-SEVENTH ANNUAL CONVENTION
OF THE
MICHIGAN DAIRYMEN'S ASSOCIATION
HELD AT
BAY CITY, FEBRUARY 21-24, 1911.

PROCEEDINGS.

The twenty-seventh annual meeting of the Michigan Dairymen's Association was held at Bay City, Michigan, February 21-24, 1911.

The meeting was called to order Tuesday, February 21, at 11 o'clock with President Marston in the chair, and the first order of business was the president's address.

Owing to the lateness in getting the meeting called President Marston omitted his Annual Address.

The Chairman: We will now listen to the report of your secretary-treasurer, Mr. E. S. Powers, of Hart.

REPORT OF SECRETARY-TREASURER.

June 30, 1310, L. S. Platt, P. M., stamps.....	\$8 50
June 30, 1311, J. N. Rohrer, stolen butter.....	12 20
June 30, 1312, J. B. Gilbert, stolen butter.....	12 20
June 30, Transferred to current expense account.....	11 51
Total.....	\$1,180 79

PREMIUMS.

Mar. 10, 1240, Fred W. Plunhoff.....	\$8 50
Mar. 10, 1241, Chris Lieburn.....	7 00
Mar. 10, 1242, Henderson Butter Co.....	4 00
Mar. 11, 1243, Andrew Vivian.....	10 00
Mar. 13, 1244, Frode Koch.....	9 00
Mar. 13, 1245, R. A. Butler.....	2 00
Mar. 13, 1247, J. B. Gilbert.....	3 00
Mar. 13, 1248, H. J. Bengtson.....	8 50
Mar. 13, 1249, Labern Cobb.....	3 00
Mar. 13, 1250, P. G. Riker.....	2 00
Mar. 13, 1251, Floyd Hendershott.....	8 00
Mar. 13, 1252, Chas. Bosch.....	5 50
Mar. 13, 1253, Henry A. Ayers.....	4 00
Mar. 13, 1254, Chas. Kemner.....	2 00
Mar. 13, 1255, Hilliards Creamery Co.....	12 00
Mar. 13, 1256, Arthur S. Nunneley.....	2 00
Mar. 13, 1257, William Dubendorf.....	7 00
Mar. 13, 1258, Wellington Best.....	7 00
Mar. 13, 1259, John Kloosterman.....	2 00
Mar. 13, 1260, H. J. Sass.....	7 00
Mar. 13, 1261, W. B. Liverance.....	9 00
Mar. 14, 1262, I. H. Riley.....	3 00
Mar. 14, 1263, H. G. Swanson.....	8 50
Mar. 14, 1264, E. Dumuth.....	3 00
Mar. 11, 1265, Lawrence Creamery Co.....	4 50

Mar. 11, 1267, William Rothrock.....	\$2 50
Mar. 15, 1268, Windy Acre Farm, Inc.....	2 00
Mar. 15, 1269, John Vugteveen.....	7 00
Mar. 15, 1270, Hugh M. Walker.....	6 50
Mar. 15, 1271, Unionville Creamery Co.....	3 00
Mar. 15, 1276, Salem Creamery.....	5 00
Mar. 15, 1277, John Milkamp.....	6 00
Mar. 15, 1278, Walter Hall.....	3 00
Mar. 15, 1279, Walter Hall.....	7 00
Mar. 15, 1280, New Haven Elgin Creamery Co.....	7 00
Mar. 16, 1281, Geo. P. Sunday.....	5 50
Mar. 16, 1282, Ray E. Sunderlin.....	2 00
Mar. 16, 1283, Henry H. Faber.....	4 00
Mar. 15, 1284, C. E. Renbarger.....	5 00
Mar. 16, 1285, William W. Reed.....	5 75
Mar. 16, 1286, John Ebmyer.....	4 00
Mar. 16, 1287, Irving W. Ellis.....	8 00
Mar. 20, 1288, Fred M. Warner.....	29 25
Mar. 20, 1289, D. A. Hoodemaker.....	11 00
Mar. 20, 1290, O. A. Ellis.....	2 50
Mar. 20, 1291, C. G. Erwine.....	5 00
Mar. 20, 1292, Ira K. Reid.....	8 00
Mar. 23, 1293, August Oldenburg.....	9 75
Mar. 31, 1295, F. W. Shaw.....	3 50
Mar. 31, 1296, P. D. Long.....	4 00
Mar. 31, 1297, B. F. Hadley.....	3 00
Mar. 31, 1298, S. R. Miles.....	6 00
Mar. 31, 1299, James Bivens.....	4 50
Mar. 31, 1300, LeRoy Creamery Co.....	5 50

PREMIUM LIST.

Mar. 31, 1301, Coloma Creamery Assn.....	\$7 00
Mar. 31, 1302, Russell Powers.....	8 00
Mar. 31, 1303, John Myer.....	4 50
Mar. 13, 1304, Fremont Creamery Co.....	5 50

Total premiums..... \$347 25

PROMOTION ACCOUNT.

RECEIPTS—1911.

Mar. 6, 435, Burnap Building & Supply Co., advertising.....	\$6 00
Mar. 6, 436, A. H. Barber Supply Co., advertising and space....	37 50
Mar. 7, 437, Kiel Wooden Ware Co., advertising.....	10 00
Mar. 7, 438, Champion Milk Cooler Co., advertising.....	10 00
Mar. 8, 439, Marsh L. Brown, advertising.....	6 00
Mar. 8, 440, American Butter & Cheese Co., advertising.....	6 00
Mar. 9, 441, Booth Cold Storage Co., advertising.....	10 00
Mar. 10, 442, Sullivan Oil Co., advertising.....	10 00
Mar. 10, 443, DeLaval Separator Co., advertising and space....	45 00
Mar. 11, 444, Wells & Richardson Co., advertising and space....	16 00
Mar. 11, 445, Coyne Bros., advertising.....	3 00
Mar. 13, 446, W. R. Brice & Co., advertising.....	6 00
Feb. 18, 447, Consolidated Coal Co., advertising.....	10 00
Feb. 23, 448, Wooster Salt Co., space.....	20 00
Feb. 23, 449, Beatrice Creamery Co., space.....	10 00
Feb. 23, 450, Gleaner Co., space.....	10 00
Feb. 23, 451, American Jersey Cattle Club, space.....	5 00
Feb. 23, 452, Shartles Separator Co., space.....	15 00
Feb. 23, 453, Colonial Salt Co., space.....	15 00
Feb. 23, 454, Michigan Farmer, space.....	5 00
Feb. 23, 455, Holstein Cattle Club, space.....	10 00
Feb. —, 456, Crown Cork & Seal Co., space.....	10 00
Feb. 23, 457, Imperishable Silo Co., space.....	10 00
Feb. 23, 458, Handy Wagon Co., space.....	12 00

MICHIGAN DAIRYMEN'S ASSOCIATION.

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Feb. 23,	459, Riverside Co., space	\$10 00
Feb. 22,	460, W. A. Cowens	10 00
Feb. 21,	461, F. E. Shaver, space	5 00
Feb. 24,	462, Burroughs Adding Machine Co	10 00
Feb. 23,	463, Torsion Balance Co., space	10 00
Feb. 24,	464, Chris Hansen Laboratory, space	10 00
Feb. 26,	465, Port Huron Salt Co., space	12 00
Feb. 23,	466, John Hall, space	3 00
Feb. 23,	467, Lawson & Bensen, space	2 50
Mar. 18,	468, Sturges & Burns, advertising	10 00
Mar. 22,	469, Lane Bros., advertising	6 00
Mar. 21,	470, John W. Ladd, space and advertising	73 00
Mar. 23,	471, J. B. Ford & Co., space and advertising	40 00
Mar. 23,	472, Sharples Separator Co., advertising	10 00
Mar. 22,	473, Vermont Farm Machine Co., space and advertising	40 00
Mar. 27,	474, P. F. Brown & Co., advertising	10 00
Mar. 29,	475, Great Western Oil Co., advertising	6 00
Mar. 31,	476, Elgin Dairy Report, advertising	6 00
Mar. 31,	477, Union Storage Co., advertising	6 00
Mar. 31,	478, Riverside Co., advertising	3 00
Mar. 31,	479, Washington Theater, advertising	6 00
Mar. 31,	480, Merchant Trade Assn., advertising	25 00
Mar. 31,	481, Loudon Machine Co., advertising	15 00
Feb. 21,	482, Memberships sold at Bay City	355 00
Feb. 22,	483, Banquet and theater tickets sold	132 06
April 24,	Michigan Mutual Creamery & Cheese Factory Fire Insurance Co.	3 00
June 2,	486, G. D. Pohl, advertising	6 00
June 13,	487, Davis Bros., space	20 00
June 30,	489, By checks not turned in	38 78

Total \$1,592 47

Expenses	\$1,180 79
Premiums	347 25

Total disbursements \$1,528 04

Total receipts	\$1,592 47
Total disbursements	1,528 04

Balance in treasurer's hands, July 1, 1911 \$64 43

SUMMARY OF DISBURSEMENTS.

One-half salary of secretary	\$100 00
Expenses of R. A. Murray at directors' meeting	6 27
Printing program books	184 75
Mailing program books	12 00
Membership books	8 50
Express on butter to annual meeting	19 36
Butter stolen	24 40
Cups	128 39
Stenographic report	91 00
Badges	48 50
Work on books	42 00
Expenses of annual meeting	495 61
Stamps	8 50
Premiums	347 25

Total \$1,516 53

Transferred to current expense account 11 51

Total \$1,528 04

Total receipts, both accounts	\$1,903 98
Total disbursements, both accounts	1,839 55

Balance in treasurer's hands, July 1, 1911 \$63 43

TWENTY-SEVENTH ANNUAL REPORT.

SUMMARY OF EXPENSES.

Directors' meeting.....	\$43 14	
One-half secretary's salary.....	100 00	
Stamps.....	73 00	
Printing.....	41 42	
Express on program books.....	7 09	
E. S. Powers, traveling expenses.....	25 67	
Office supplies.....	21 19	
Total.....		\$311 51

FINANCIAL STATEMENT.

July 1, 1910, to June 30, 1911.

CURRENT EXPENSE ACCOUNT—RECEIPTS.

Appropriation from state treasurer.....	\$300 00	
Transferred from promotion account.....	11 50	
Total.....		\$311 51

DISBURSEMENTS—1910.

July 19, 1214, W. F. Raven, expenses directors' meeting.....	\$11 21
July 19, 1215, C. R. Webb, expenses directors' meeting.....	7 75
July 22, 1216, E. S. Powers, expenses directors' meeting.....	24 18
Sept. 7, 1218, L. S. Platt, P. M., stamps.....	24 00
July 19, 1219, L. S. Platt, P. M., stamps.....	10 00
Sept. 10, 1220, L. S. Platt, P. M., stamps.....	8 00
Dec. 31, 1222, Dayharsh Bros., printing.....	16 50
Dec. 17, 1224, E. S. Powers, traveling expenses.....	15 27

DISBURSEMENTS—1911.

Jan. 25, 1272, L. S. Platt, stamps.....	28 00
Jan. 28, 1273, L. S. Platt, P. M., stamps.....	3 00
Feb. 13, 1274, T. J. Story, express on program books.....	7 09
Feb. 17, 1275, E. S. Powers, one-fourth salary.....	50 00
Feb. 9, 1305, Dayharsh Bros., printing.....	16 50
Mar. 31, 1306, E. S. Powers, traveling expenses.....	10 40
June 12, 1307, Dayharsh Bros., printing.....	8 42
June 30, 1308, E. S. Powers, one-fourth salary.....	50 00
June 30, 1309, E. S. Powers, office supplies.....	21 19

Total..... \$311 51

PROMOTION ACCOUNT—RECEIPTS—1910.

July 1, 410, To balance.....	\$145 83
July 7, 411, Jensen Mfg. Co., space.....	30 00
July 7, 413, R. Hirth, Jr., space.....	5 00
July 7, 414, Jersey Cattle Club, space.....	10 00

MICHIGAN DAIRYMEN'S ASSOCIATION.

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PROMOTION ACCOUNT—RECEIPTS—1911.

Jan. 14, 415½,	Farmers Mutual Lightning Protective Fire Insurance Co., advertising.....	\$3 00
Jan. 14, 416,	Chas. Hansen Laboratory, advertising.....	10 00
Jan. 14, 417,	Worcester Salt Co., advertising.....	6 00
Jan. 21, 418,	McDonald & Hough, advertising.....	6 00
Jan. 26, 419,	Isaac W. Davis, advertising.....	3 00
Jan. 23, 420,	Harris & Throop, advertising.....	3 00
Jan. 23, 421,	Port Huron Salt Co., advertising.....	12 00
Mar. 2, 422,	Creamery Package Mfg. Co., space and advertising.....	60 00
Mar. 2, 423,	Empire Cream Separator, space.....	12 00
Mar. 2, 424,	G. M. Wattles & Son, advertising.....	6 00
Mar. 2, 425,	Lewis Mears & Co., advertising.....	10 00
Mar. 2, 426,	American Steam Pump Co., advertising.....	9 80
Mar. 1, 427,	Geo. M. Baer & Co., advertising.....	3 00
Mar. 1, 428,	Gleason & Lansing, advertising.....	10 00
Mar. 3, 429,	Elgin Butter Tub Co., advertising.....	10 00
Mar. 3, 430,	Fitch-Cornell & Co., advertising.....	6 00
Mar. 3, 431,	Diamond Crystal Salt Co., advertising and space.....	25 00
Mar. 3, 432,	Dairy Assn. Co., advertising.....	10 00
Mar. 6, 433,	F. E. Boehncke, advertising.....	10 00
Mar. 6, 434,	The Marschall Dairy Laboratory, advertising.....	6 00

To the Officers and Members of the Michigan Dairymen's Association:

Gentlemen—At a meeting of the executive committee, held in the office of then Secretary Wilson's office in the city of Flint, July 7th, 1910, the following members were present:

Mr. T. F. Marston, President; E. S. Powers, Secretary and Treasurer; Directors, C. R. Webb, W. F. Raven and R. F. Frary.

Meeting called to order by President Marston. A committee of the whole were appointed to audit the accounts, and books of Ex-Secretary S. J. Wilson, which were found correct. Amount on hand, \$145.83, which was turned over to Secretary-elect Ed S. Powers.

Representatives were present from Saginaw and Flint and extended invitations to hold the next meeting in their respective cities. After debating the matter for some time, it was moved the subject of next meeting place be laid on the table.

Carried.

Resolved, That the dates for next Annual meeting be held on February 21, 22, 23 and 24.

Carried.

Secretary was instructed to notify program committee to meet with the executive committee at Bay City, July 15th, 1910.

Motion made to adjourn to meet at Bay City, July 15th, 1910.

Carried.

E. S. POWERS,
Secretary.

Adjourned meeting of the executive committee of the Michigan Dairymen's Association:

Meeting called to order at the office of the Northeastern Development Bureau, by President Marston.

Directors present, W. F. Raven, C. R. Webb, R. F. Frary, E. S. Powers.

The members then proceeded to discuss the next annual meeting place: an adjournment was taken to inspect the new Armory and on convening

in session a motion was made to accept the invitation from the citizens of Bay City, and that the meeting be held on the dates adopted.

Resolved, That the Association offer prizes for a butter and cheese makers' scoring contest and a committee appointed to draft such rules and specifications to govern such contest.

Carried.

President appointed W. F. Raven, R. F. Frary and Secretary, to draft such rules, and take full charge of such contest.

Resolved, That the Association pay all drayage charges upon exhibits to and from exhibition hall. The President appointing Mr. Walter Vasold Secretary of transportation.

The program was prepared by a committee of the whole, as R. A. Murray being the only one of the program committee present, the matter was fully discussed and different sessions given as advantageous a position on the program as possible. The matter of securing outside speakers was fully discussed, as was also the judges on dairy exhibits. The subject finally was left to the committee to correspond with the different speakers suggested and to secure competent judges on dairy products.

No further business appearing, the meeting adjourned.

E. S. POWERS,
Secretary.

A formal meeting of the executive committee met at the Coliseum, Chicago, October 24th, 1910, to formulate further plans in completing program, and other business appearing.

The following members were present: President T. F. Marston; Secretary, E. S. Powers. Directors: W. F. Raven, C. R. Webb and Claude A. Grove.

Meeting called to order by the President.

The following resolutions were adopted:

Resolved, That this Association purchase nine silver cups to be divided in 1st, 2nd and 3rd prizes, to the three different classes of contestants, namely: butter, cheese and market milk. To the buttermaker scoring nearest number of points to the official score, to be awarded 1st prize, second nearest, 2nd prize and third nearest, 3rd prize. The same rules to govern the cheese scoring contest. The purest market milk exhibited to be awarded 1st prize; second purest, 2nd prize; third purest, 3rd prize.

Resolved, That a nominal charge of twenty-five cents be made to members, to help defray the expenses of a banquet.

Carried.

No further business appearing, meeting adjourned.

E. S. POWERS,
Secretary.

A meeting of directors of the Michigan Dairymen's Association was held at the Wenonah Hotel, February 23rd, 1911.

Present: Raven, Webb, Grove, Frary, Freeman, President Marston, Vice-President Vandenhoom.

President Marston called the meeting to order.

Motion made and supported that W. F. Raven and Vice-President

Vandenboom be sent to the Legislature in regard to securing appropriation of \$500 for State Dairymen's Association; Director Freeman agreeing to frame a bill and present it to next session of Legislature, and report results to President Marston.

No further business appearing, meeting adjourned.

C. R. WEBB,
Secretary Pro Tem.

In taking up the work as Secretary of this Association your humble servant has many regrets to offer its members, but no apologies. It is our best effort, taking into consideration the limited time that could be spared from our regular vocation. In formulating a program and securing attractions and speakers for this annual meeting, its an easy matter to put down on paper just who the speakers will be and what the attractions will be, but formulating, selecting and engaging, does not always terminate to the satisfaction of members, or to those that are held responsible. President Marston had outlined features for this meeting, that could not have failed to win applause from visitors and members. Difficulties arose, however, that prevented carrying out as was planned. Speakers consented to have their names printed on the program, only to send telegrams of regrets of their inability to be present. However if work counts for anything this meeting should be a huge success.

Communications were received from a number of members, dairymen if you please, that expressed themselves as being dissatisfied with the limited time for the discussion of dairy subjects; terming it a butter and cheese makers convention. Such, however, is not the case as the time is as near equally divided as in the committee's judgment it could be.

There has been no request for Auxiliary meetings during the past year, no doubt owing to the resolutions adopted that forty dollars should be pledged for such meeting.

A communication was received from the dairy division at Washington, D. C., with a request that it be presented to the committee on resolutions, which was overlooked and in as much so is deserving space in these proceedings:

"UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF ANIMAL
INDUSTRY.

Washington, D. C., January 19, 1911.

"Mr. Ed S. Powers, Hart, Michigan:

"Dear Sir—I am writing you today primarily as a member of the Michigan Dairy Farmers' Association and also as an officer in charge of that section of the Dairy Division which is intrusted with the supervision of this work throughout the country. It seems to me that the Association should support in a more substantial form than it has in the past, the cow testing movement. I beg to call your attention to page 31 of the enclosed premium list of the Maryland State Dairymen's Association. You will see that this association offers a prize of \$25 for the best essay of between one thousand and fifteen hundred words on cow testing associations, also a prize of \$25 for the cow making the best

milk record for the next 12 months. There is in all \$75 offered by the association to encourage the cow testing associations. Of course these prizes are awarded on records furnished by the cow testing associations, and these awards are made of cows with a record in the cow testing associations. The State of Maryland has only one cow testing association and takes this means of encouraging and especially to calling the attention of the farmers to the work. I have no doubt that if this matter was brought to the attention of the Michigan Dairy Farmers' Association enough interest could be aroused on the subject so that resolutions could be passed instructing the officers of the association to offer similar prizes.

"I would thank you to bring this matter to the attention of the Committee on Resolutions at your annual meeting.

"It has occurred to me that the prizes might be awarded a little differently; for instance, one of the necessary things in the association work is the unflagging interest of the cow tester. He is left to himself so much that there is a great temptation for him to slight the record work a little, and it has occurred to me that if \$25 or \$50 was offered for the best kept, most complete, and best analyzed records furnished by the cow tester in the State, that these men would take more interest in their work. Again, a prize might be offered for the member of the cow testing association who makes the greatest advance in economical production for the following year. I believe prizes of this kind will stimulate the movement a great deal, and I believe Michigan should be one of the first states to do this.

"The essays for which prizes were offered in Maryland were judged by me this winter, and I found two of them were exceptionally good articles, both on the history of cow testing associations and the benefits which they have been to members. The men who wrote them must have devoted considerable time to the study of this movement.

"Hoping that the association will see fit to encourage the work in some good substantial way, I am,

Very sincerely,

HELMER RABILD,

In Charge, Dairy Farming Investigations."

E. S. POWERS,
Secretary.

The Chairman: There being no further business, we will stand adjourned until 1:30 o'clock this afternoon.

TUESDAY AFTERNOON SESSION.

Meeting called to order at 1:30 o'clock, with President T. F. Marston in the Chair.

The Chairman: You will please come to order. I take pleasure in introducing to you Professor Lyman, of the Michigan Agricultural College, who will talk on abortion in animals, and I believe most of us who own cattle are having trouble in our herds owing to this disease. We will therefore be glad to hear from Prof. Lyman.

ADDRESS.

PROF. LYMAN, MICHIGAN AGRICULTURAL COLLEGE.

Mr. Chairman and Gentlemen of the Convention: I have been asked to come here and give a talk today on the abortion of cattle, a disease which is possibly quite as prevalent as any disease we find among dairy animals. It is a disease that for a considerable time has not really been considered of such magnitude as it really is. Whether it is a disease that is more prevalent than tuberculosis I am not prepared to say but there is no question but that it causes fully as much loss in its methods of working through the herds, in the loss of calves and in the interruption of the milk supply.

Contagious abortion has been known for a very long time and at the present time there is probably no possibility of disputing the fact that this is a disease among the dairy cows that is of a contagious nature. We understand, perhaps, different conditions in the line of abortion. The term abortion technically implies the loss of the young before the period when it can maintain a separate existence from the mother, and the young that is born at a period when it can maintain a separate existence and yet has not reached the full period of gestation is termed premature birth, but when it comes to a disease of contagious nature the line has to be drawn there; do not attempt to differentiate between premature birth and abortion. We simply call it infectious abortion; a disease transmissible from one animal to another, and through certain methods of its action we know it is a disease possible of conveyance.

Of recent years there has been a good deal of study on the disease of abortion and there are even today a number of people who do not admit that there is such a thing as contagion in it. There are also a large number of cases where we find the cows abort, or slip the young, as it is sometimes termed, that are not contagious. We have a lot of abortions, or miscarriages, premature births, that are produced through accident; so, as a matter of fact, we have to consider in the general term of abortion two kinds, sporadic or accidental which may be produced from falls, from diseases, attacks of indigestion, and a large number of allied causes. And, on the other hand, we have this particular disease, infectious abortion, to deal with.

A few years ago a Dane by the name of Bang isolated and discovered an organism which is microscopic in size and which he was able to inject into the other animals. By injection of various kinds, blood injection and various other kinds, he was able to transmit the disease to apparently healthy animals. The investigations along that line have been extensive. The organism has been isolated too and it is beyond dispute today a specific organism.

We have in contagious diseases to deal with some kind of germ. We call them microscopic because we cannot see them with the naked eye. It is the general belief that a great many diseases of a germ organism, such as foot and mouth disease which was widespread a few years

ago, while they are a specific disease we do not know their organism, but they must be infectious, but this disease is beyond dispute. Now we know these causes beyond question cause the infection, but there are other causes that are in the relation of contributing factors indeed are predisposing. We have the close living together that cattle have of necessity, in fact it is not possible to keep stables in the same condition of cleanliness that exists in the household because of the habits of the animals. The custom of trading young animals from place to place is contributory to the spread of this disease of abortion; the habit of the farmer keeping a bull for the use of the entire neighborhood is also a very prolific factor in the spread of the disease.

The discharge from the animals that have aborted have been found to be capable of producing the disease. So when the disease becomes once introduced into a barn it becomes more or less generally widespread.

These infectious diseases all have what is termed a certain period of incubation. By that we mean that after the organism has gotten into the body, through some source or other, it takes a certain time to develop the same. During that period there are no outward symptoms to be observed. Nothing is known of what is going on in the system. When the period of incubation has expired, the animal begins to show the symptoms and before we can check it it has gone too far. That period generally has a range of from six to eight or more weeks in its incubating period. It is hard to trace the source of contagious abortion. It may be carried by men cleaning a cow that has aborted or by permitting an aborted cow to be in the stable among other animals.

I am not going to spend a great deal of time upon the disease. I am just sort of giving a rough and rapid outline of contagious abortion with the idea that I will leave it for you in discussion and in that way take up the points that you may suggest.

Going on from the causes and incubation period, what are the symptoms of abortion? Here we find it is difficult to lay down any definite symptoms. Many animals abort without any previous symptoms, others go through a certain definite line of symptoms and we know the animal is going to abort. As a matter of fact, when an animal is affected with the germ of contagious abortion and there is apparently evidence of disease in her, shown by the definite symptoms, there is no way of preventing that abortion. We may get some preparation or other that will prevent the abortion for a period, for a day or two or perhaps a week, not probably longer than that, but as a matter of fact the germ that grows in the membrane of the young in the uterus produces in time the death of that young or fetus, if it does not make its escape alive, after it has become thoroughly diseased expels; if we get some antiabortion preparation we simply retard that for a short time. The symptoms come on in those animals, they give us a line of symptoms, particularly the animal that has never been bred before, we know there is a gradual making of the udder. This is very much more rapid in its development than is common in the parturition animal period. Besides this there occurs a more or less abundant discharge from the openings and we get besides that a sort of filling and softening of the ligaments, or croup, as it is called, the parts on either side of the tail. The birth passage there is controlled under its sides by a couple of large ligaments. These in

the animals that are not giving birth are hard and almost unyielding; they feel almost like strips of bone that pass up and down there. Now these at the birth period undergo a filling with a fluid, so we notice a filling of the croup or actual opening and softening of all the birth passages. This takes place in the abortion and the animal slips the young, either dead or alive, depending on how far mature it may be and associated with premature birth we find in the cows the membrane controls called the afterbirth are not expelled. As a general rule, that is one of the common and associated symptoms of abortion. If a cow has given birth in the early stages there are no symptoms to be observed beyond the fact of slipping the young, a few days later there being a discharge from the openings and this keeps on for two or three weeks. In these young cases the fetal membranes come away, but in these that come from five to seven months of the gestation period the membranes rarely come away.

A cow goes to the pasture apparently all right in the morning, may come back and be absolutely unsuspected of having aborted during the day but in a certain time there is a discharge. There is no direct attachment between the young and the mother, contrary to general opinion. The fetus has its own circulation, has its own heart and own blood supply, as does the mother have her own. Its blood passes from its own little heart to the outside wall of the uterus where it comes in contact with the mother's blood vessels and the young gets its nourishment by process of suction of the fluids through these membranes. When abortion occurs if the fetal membranes are left without there is nothing to nourish there and they quickly undergo decay, and it is not very long before the symptoms of abortion may be manifested by the odor of decay found there.

These symptoms are those of any kind of premature birth up to this point, but we have one or two distinguishing symptoms that are sufficient to distinguish from a simple or an infectious abortion. One symptom is there are several animals slipping their young; if one animal has aborted, the disease becomes spread by the cow whisking her tail, by the animal lying down, by the soiling, by the afterbirth soiling the floor or pastures. There are various ways of communicating it and after the disease has appeared in one animal we find it begins to be manifested in a series of animals. That is a symptom that points directly to it.

Another symptom is that the afterbirth does not have that smooth glassy appearance that is found in the afterbirth of an animal, the outside of that afterbirth is covered with small yellow granules, so small that they are difficult to observe. Cows not having much exercise are liable not to expel the afterbirth, and of course we must not mistake that for contagious abortion.

Now when does this occur, at what period of birth does abortion occur? We find that animals that have never aborted up to the time of the first abortion may abort or slip the calf at a very early stage, perhaps two months from the time of the beginning of the period of gestation or birth carrying. A cow that has aborted once generally will abort again unless the disease has been stopped, and she will carry the young a second time a certain longer period. Experience has demonstrated that abortion in a cow does not seem to take place more than three times and sometimes not more often than twice. The cow that has ab-

orted a couple of times, or at least three times, seems immune from any further inroads of the disease, but she is not immune from transmitting it to others, and the result is that we find it at varying intervals in the herd. The condition of immunity that I have just mentioned is one in which an animal has developed a certain listness to any further disease. We have of course three kinds of immunity in animals; a natural immunity, one in which an animal even from the time of birth will not contract the disease. For instance, a cow is naturally immune from glanders that effects the horses. A cow will not get the glanders. We have artificial immunity, which is using medicine which prevents the disease in the animal, by inoculation. But here is what we call acquired immunity.

Now that point is something of considerable importance in dairying, the acquired immunity that exists in contagious abortion. So frequently do we hear and know of dairymen and cow owners who have a case of abortion, and they simply sell the animal that has aborted and buy another one, and sooner or later, perhaps, another animal in the herd aborts and then they have another cow to sell. They transmit the disease to whoever buys the cows and they also keep it within their own herd. If they would keep the cow that aborted in their own herd and attempt to get rid of the disease through disinfecting, or other means that we have, and allow her to become immune, which would be bye and bye, they would no longer have abortion. Of course we must admit that their young never acquire the immunity. They would have to undergo certain abortion, but it is a most persistent disease.

There is another thing in the way of this question of aborting that I did not speak of, and that is the tendency that the sire of the herd has to spreading or carrying the disease. That is something that the owner of a sire should know and should bear in mind, he should be careful about loaning his herd sire to neighbors. It is best to take a little chance of insulting your neighbor and insist that the sire of your herd is the sire of your herd and of no other herd, because he may be a sire of an absolutely healthy herd and then, through your generosity or eagerness to obtain the fees that go with it, the disease is introduced in your herd; so it is well to bear that point in mind that diseases may be conveyed through the sire.

I do not know that I need to enlarge upon this subject. I naturally will leave the question of treatment out for the time being, believing that discussion may bring that out. I have only talked in a general way. I might talk an hour or two longer but I believe the better way to do is simply open the subject, that is all I want to do. I will leave it here for the time being waiting for you to ask questions, and I will answer those questions until the Chair calls me down.

DISCUSSION.

The Chairman: This seems like a good opportunity to ask the questions you have in your mind because Mr. Lyman can answer them, so do not be backward in letting us hear from you.

Mr. True was down to open the discussion of Mr. E. K. Slater's paper, but Mr. Slater is not present so we will ask Mr. True to lead in the discussion of Dr. Lyman's address.

Mr. True: This question of abortion is a very serious one. I have

been wrestling with it for ten years and I do not know that it is a question for a layman to take up. I believe that it is a disease that has been carefully studied by our experiment stations and by our veterinarians, and I believe the way to get more information on this subject is to question Professor Lyman.

Member: Did you say this disease could be transmitted to mares?

Prof. Lyman: In the mare there exists a disease which we call infectious abortion, but, as far as we are able to discover, it does not seem to be the same as in cows. It has not been possible thus far to infect mares with the disease the organism of which has been taken from the bovine race. The disease in the mare works quicker. Abortion in the mare in a stable of mares passes through the entire female family of that stable very, very rapidly and it seems to be of a very epidemic character. Abortion of one female is followed by six or seven animals in two weeks, but we have not been able to transmit the bovine organism to any other animal except by inoculation; it has been transmitted to sheep and some of the smaller animals, but not to the mares.

Mr. True: I have understood that it was transmissible to swine. I have been in the habit of using the hog house as a hospital for cases of this sort and I have never seen any evidence of it having been transmitted to hogs.

Prof. Lyman: I do not think it is transmissible to swine but they are not very susceptible at least.

Member: Did I understand you to say the young inherit the disease or acquire it after birth?

Prof. Lyman: Acquire it afterwards. That brings up a thought in relation to the methods that have been tried to find how the disease has been communicated from animal to animal. Prof. Dane, of Denmark, is strongly of the belief that the disease is communicated from cow to cow through the process of eating foods that have become infected with the organism, the organism of course passing from the female passages, dries and then with the movements of cattle is taken up into the air and settles on feeding mangers, etc., or the cattle, as they have the habit of caressing one another with their tongues, may get the germs in that way. He says it passes into the digestive tract; the germs are not killed by the process that dissolves food but are taken through the tissues into the general blood stream and then, like other germs, they have a sort of special tendency to get to a certain spot, just as the germs of pneumonia seek the lungs, germs of another disease seek another organ, so the germs of abortion pass on to the uterus and if they can once pass through the digestive membranes they can pass through the uterus membranes and destroy the fetus. This is theory and it is conceded to be quite strong.

I have done some work in connection with the New England states where we saturated a piece of cotton with discharge containing this germ, this cotton was passed into the vagina of the cow and after a period of six weeks, or something of that kind, two of the three animals on which we experimented, showed symptoms of the disease. These cows were heifers and came from a herd where the owner said there never had been any abortion and he did not believe we could transmit it, so we took the chance and the opportunity that was offered and produced it in two out of three we tried, by inserting into the vagina a plug saturated

with the discharge. There are two possibilities of the law of infection; one is that the material was absorbed through the tissues of the regina and in that way into the blood stream. Another theory, and possibly one that may be strongly favorable, it is possible the germs entered the uterus through the usual openings of the neck of the womb, but that theory I have never been willing to admit was good because we know the neck of the womb is closed during the entire period of young bearing, impervious to air. If the germs of abortion could get in there, I believe the germs of infection could get in as well, so I am not inclined to the belief that the germs enter the regina through the neck of the womb and into the pregnant animal. So we have those three conclusions of the law of infection of the germ. Another theory is that the germ might be in the uterus previous to the period of pregnancy. I think that is possible but the period of incubation of the disease has been so thoroughly established it must be there only in those that lose their young at a very early period.

Member: You said you would keep the animal that had aborted. What is your reason?

Prof. Lyman: You have a certain amount of milk you wish to supply, or have a customer that wants a certain amount of milk, and if you sell a fresh cow, one that you were planning on to assist in your milk supply, you will have to buy another one to keep her place with the result that you will keep that disease around every new cow. whether you buy a stripper, buy her in calf or in flow of milk, one or the other, and in order to be useful to you she has to be bred. If you do not breed her she is valueless to you and the minute you breed her you have gotten the disease again in another animal, consequently you are bringing in new material for that infection continually by selling the old cow and replacing her by another one. Remember, keep the cow and give her proper treatment.

I have not said a word about treatment because I thought that would come up in discussion but if you keep the cow you must give her adequate treatment to eradicate the disease.

Mr. Vanderboom: Don't you think it possible in a year or a year and a half to breed the same cow back with good results. We have tried that and with very little treatment I have had good success the second year.

Prof. Lyman: Yes that is certainly possible.

Mr. Wilsey: What treatment do you use, Mr. Lyman?

Prof. Lyman: The college is undertaking, through its bacteriology department, which is one of the divisions of the veterinary as well as agricultural, to note the value of a certain line of treatment, about which they will inform you by correspondence. I am of the general practitioner plan and I will suggest a little outline of treatment from that view point.

In order to properly cope with this disease, it becomes necessary to use something in the way of a germ killer. We consider in medicine a line of drugs which are known as antiseptic,—anti against and septic infection. We cannot, however, give an animal an antiseptic that is strong enough to immediately kill the germ that is within her body unless we give the animal an antiseptic so strong as to injure that animal. Antiseptics that will immediately kill will irritate and produce inflama-

tion of the passages that we are attempting to kill the germs in, consequently we must get something that will not irritate the animal and at the same time something that will weaken the strength of that organism so it ceases, after a while, to become very active and organisms grow by multiplication, one makes two, two makes four, four eight, and so on, we are treating them so they cease to multiply. While we do not immediately kill the organism in the regina and uterus at the time of abortion, we give a continued antiseptic so as to weaken those that are there and keep at them until they have passed their period of existence and there is no fresh supply. My method has been to divide a herd, depending upon its size, in about three parts. This method I have pursued in fourteen years practice before I took up college work. One part consisted of animals that were within two or three weeks of births and included animals that had just come in; a second group consisted of animals that had been pregnant at least one month and from one to three months; the third group consisted of animals pregnant from five to seven or eight months. That made three groups. This is the method I used. In the first group, the cows that were about to come in and had just come in, the first actual signs they were found to begin to spring, it was my practice to recommend the syringing or cleaning of the regina and birth passages as far as could be done from the outside. I had the owner of the animals get a four ounce rubber syringe that had on it a long nozzle or stem, long enough to reach well into the regina. About the time that the animal would begin to spring I would suggest that those animals be injected once a day for three or four days, and if there were still signs of the springing I would continue it. At the time of birth this same group were invariably cleaned by cleaning the minute the afterbirth was taken away. I do not believe in taking the afterbirth away from a cow sooner than twenty-four hours after she has calfed because the blood vessels are thoroughly open and the minute you begin to take the afterbirth away too quick you are going to have a hemorrhage in that cow. If, and it was generally was the case, the afterbirth hung very well detached it was a difficult task and after the membranes were entirely removed then the uterus was thoroughly syringed. A large veterinary syringe was used for that purpose and a continuous flow of antiseptic was placed in the uterus and allowed to flow out, and this was done only once. Do not do it every day. If you do it every day you have to open up the neck which is trying to contract and get back where it belongs, which will be inside of two or three weeks. That was the first group. Those animals were not touched after that unless a man had plenty of time and he gave them a little syringing after three weeks. I told them not to breed those cows until every sign of discharge was stopped, and the cows were isolated until the discharge was stopped.

The second group was bred about a month and I had the owner give those animals an injection every day for about two weeks and then nothing was done for a period, but the other group was taken and they were injected, the other group being the third group which was from five to seven or eight months along, and they were given injections every day for two weeks alternating. The second group included the animals from one month of pregnancy to about five, and they were injected every day for two weeks, and then the other or third group of ani-

mals were injected every day for two weeks I went to group No. 2 and gave the treatment for a week, then to group No. 3 and so back and forth taking in the cows which should reach a certain period of young bearing. It will not take a great while to inject ten or a dozen cows under that method. I have practiced that method for a number of years and I have seen the disease eradicated but the sire of the herd must be injected also, and he should be injected before service as well as afterwards.

Member: What antiseptic did you use?

Prof. Lyman: One-half per cent to one per cent of lysol solution. I found it worked effectively, was not irritating, is not poisonous as carbolic acid, and can be obtained at any place.

Mr. Vanderboom: Do you consider crealine or do you prefer carbolic acid?

Prof. Lyman: I do not prefer carbolic acid to crealine. Carbolic acid has a bad odor and lysol has the same, as far as that goes, but at the same time carbolic acid is more poisonous. It is an oily preparation and does not mix well with water, and you do not always get the carbolic acid you want. If you use carbolic acid you must buy it in crystalline form, whereas in the case of lysol as it is a coal tar product, as is carbolic acid, it is easily obtained, will mix well with water, forms the sort of looking water dishes have been washed in. Use soft water, not hard water. The crealine is also oily and does not mix well. I think the other is better all told.

The Chairman: If there are no further questions you wish to ask, I desire to make a few announcements at this time. The meeting tomorrow will be held in the Odd Fellows Hall across the street. This evening the meeting will be held at the Y. M. C. A. auditorium. We expect an excellent program this evening, especially for those interested in milk. Tomorrow evening is devoted to a social time, and tickets will be sold for fifty cents. These tickets admit the holder to the theater from 8 until 10 p. m., and from the theater we will go to the dining room of the Wenonah Hotel.

The next subject on the program is something I can hardly tell you much about. The gentleman introduces himself; he is from among the Indians and it is hard for us down here to feel that anyone from the Straits of Mackinac will give us pointers on dairying or subjects of that kind. I take pleasure in introducing our vice-president, Mr. Vanderboom, who carries his milk pail with him.

DAIRYING AND DAIRY EQUIPMENT.

MR. F. H. VANDERBOOM, MARQUETTE, MICH.

Mr. Chairman, Ladies and Gentlemen: I assure you it affords me great pleasure to be with you this afternoon and be able to speak to such a bright and intelligent audience, more especially as we have so many bright young ladies with us today. It is hard to get the ladies to attend the meetings and become interested, and I am glad we have some with us today because there is scarcely a man in this country that is a successful dairyman unless he has a wife that is interested in the business. I think more men fail in the dairy business because their wives are not interested than for any other reason. Many men leave the farms because they are not started right, but when a woman is interested there is no question but that her husband can get along and go ahead in the dairy business. We like, therefore, to see the woman attending the dairy meetings.

We have all heard the old adage "Follow you the footprints of the cow and where she lies down there build your city." I say learn you well the habits of the cow and handsome will be the profits therefrom. There are indeed many of us dairying who do not study the cow, while if we follow closely the habits of the cow and work with the cow there is no business in this country that will pay a man as well as for his labor as will a productive cow, remember I said a productive cow, not any cow.

While we are talking of the dairy subject, I want to say at the outset that the dairy business has grown to such an extent that it stands today as one of the largest agricultural business in the world. The wheat man and corn man think they have a big business; they tell us that they waste more money, have more crops in one week on a western farm than we Wisconsin people can grow in a year. "True enough," says the Wisconsin man, "that is why it is so hard to get the interest on my money over there." We do not want to waste anything, we want to utilize everything. The dairy business today, the product of the cow, is in value more than double the amount of the wheat and corn crop combined. Just think of it, people, the wealth that is in the little cows that we have. The trouble is we think our business is too small; we do not think enough about it. We think the other fellows have all the business, we just a few cows. If we follow our cows closely, give them an opportunity we will be able to show the world that the dairy business is the important business of the nation today. We figure the farm is the backbone of the country but the real backbone of the country is the dairy farm. The farmer, as he has been spoken of for years back, has been the corn grower and wheat grower, today they are set down as soil robbers that have been fleecing their farms, and many have moved from their farms and started to fleece another farm long before now. The dairy farmer is a soil builder, has always been a soil builder, and as long as he keeps cows he will be a soil builder, and that is what the country is calling for now is soil builders and not soil robbers, so

the dairy business is the most important business in the United States today; all it needs is careful study, careful attention and a little work with it.

DAIRY EQUIPMENT.

The first thing in the way of dairy equipment, so far as I can see, is have a good herd of cattle. The first question is what breed. I do not care what breed; cows that will give milk, produce butter and butterfat, cows that will breed cattle, that will multiply. But we have the dairy breeds; we have the Holstein breed, the biggest milk producers in the world; the Guernsey breed, the finest cows I ever saw, they will not produce as much milk as the Holsteins but they have the cream, they have the color and all those things. One pail of Guernsey milk will color three pails of Holstein milk, make it all look like Jersey milk. I keep the Holstein cows, keep the Guernsey and some Jersey cows. I pay particular attention to the Holsteins and Guernseys; but one thing I advise any farmer to do, whether he keeps Holsteins, Guernseys, Jerseys or Ayershires, is to keep a thoroughbred sire of whatever breed his cows are, and raise his cattle. By doing this you will increase the fertility of your farms and multiply the produce, it makes the dairy feed the farm and the farm feed the dairy. It makes no difference what breed of cattle you have so long as they do a profitable business.

Next is the barn. Don't build a barn and put one window in it, a door in it, and not let in any fresh air. Get a big roomy barn; don't be afraid to build it too large, you will soon fill it up. The most important point in the dairy barn is light and ventilation. You should have at least one window for every three cows in the barn, a reasonable size window. And then for ventilation; don't be too stingy with your ventilation. I do not care whether it is the King system or the Governor Hoard system as long as you get the air. It is all the same to the cow as long as you give her the air.

Another point we find very important in dairy equipment is water. Do not turn your cows out to freeze to death in order to get a drink of water. If we had to get up in the morning and run a mile to get a drink out of the ice, how many of us would get it? The cows must have drinking water and the more they drink the more milk they give. Between each two cows we have water buckets. We have had the same buckets in our barns for sixteen years and have never had any trouble with them yet. If they get sluggish we attach a little hose to a boiler there and everything is cleaned out in five minutes, and it goes along for months without any obstruction whatever.

Next of importance in the dairy business in the way of equipment is the crop; something to feed your cows. The main thing we can find to grow in the upper peninsula, up "among the Indians" is corn and then when ready take care of it. Five years ago, when I talked to our people about growing corn, the old farmers said, "You cannot grow yellow corn up in this country." They meant we could not ripen it. Now in the upper peninsula where we live, among the Indians, nothing is supposed to grow; we grow corn that is eleven to fourteen feet high, and we can ripen it in September, and if we grow smaller corn can ripen it by the last of August. All it requires is reasonably early planting and continuous cultivation, and we grow corn so rapidly we can hear it grow.

The next thing is keep those barns in a sanitary condition. Lots of people have different ideas about sanitary conditions but we find, since we put in concrete floors and used an ample amount of bedding with something to absorb the moisture, and have kept them cleaned twice a day, that there is not very much trouble about sanitary conditions.

There is another important thing, I think Dr. Wateman brought up the subject last year, and that was the curry comb and brush. I believe that in our herd of seventy cows we can make a difference of seventy quarts of milk every day by using the curry comb and brush, and more than that we make a difference of about 20% in the appearance of the herd when somebody comes to see it. We do not have them come there to buy high class stock because we have none for sale, they come to see where the milk comes from and see where we get it. That is the reason I brought what we call a sanitary pail with me. I had a firm from New York send this pail on not to be sold here but to be shown as what in my opinion is a sanitary pail. I thought some of adopting the pail they call sanitary a few years ago, with cotton batting, cheese cloth, etc., but I talked the matter over with one of the leading men at the Agricultural College and he said "Nonsense to think of putting cotton batting in there and keep the dirt on that." That little talk kept me from putting in that pail. Now we use a pail which I hold at an angle of 52 degrees, the entire top of the pail is covered and no dust or dirt will get into that pail, and you have no cotton batting nor anything else. If any body doubts the benefit of a pail of that kind let him try it for a day or two and then look at the strainer cloths and I will guarantee he will know whether it is of value or not. After using a pail of this kind, take a big open pail and go down and milk and you will wonder why you have such a big open pail there to catch the dirt. If you have a barn like some of the barns I saw in Wisconsin a few years, with one window one and a half feet square in a barn where there were thirty cows and a double door for fear some air might get to those cows, and the cows were not only saturated with manure but were lying in it from four to six inches deep from their front feet to their tails. Imagine the filth there would be in an open pail when milk is drawn in such a barn.

As a further equipment of the dairy, I would say by all means, if you are going to make market milk, bottle it, but do not bottle it in the barn; have a bottling machine of some kind. If your business is not big enough to warrant a bottling machine that will bottle twelve bottles at a time, get one that will bottle six at a time; if you do not feel it necessary to have great speed get a hand machine that will bottle one at a time, but bottle it and see that the bottling room is a clean place and keep it clean; do not let it get dirty. Then I would suggest right here (and this suggestion was dropped to me a few years ago by one of our inspectors, sorry we have not more) when you send your milk to the market, ship it in ice; deliver it to the consumer in first class shape, and then if the consumer does not take care of it you cannot help him. Treat the consumer the same about bottles. The consumer wants clean nice looking bottles; then do not let a consumer use that bottle all day, then dump the milk out of it, let it lay in the kitchen all night and the next morning give it to you without having been washed, as is frequently done. Tell them "You do not care to have us

bring dirt into the house from the dairy, and neither do we care to bring your dirt into the dairy." Then if you are making a quality of milk that the people are willing to pay for, you must have it put up right. If the people want milk for three, four or five cents a quart, give it to them that way, but if people are willing to pay for a first class article you know that the ordinary cap on the bottle leaves room for dirt to accumulate on the inside of the cap. I say get a cap of some kind. I do not mean this particular cap, get a cap that covers the entire top of the bottle. We need it to be practically air proof and water proof, and more than that when you open it out it looks good. Any customer that would not pay five cents for a bottle like that in preference to four cents with a dirty bottle, we do not want to do business with that class of people, and when a dairyman gets to a place where he can make a distinction between the customers he wants and the ones he does not want to do business with he is successful, but when he lets everyone beat him that is where he fails. Put out an article that will bring a good price, have it a sanitary product pure and simple and get a profit on your business, and you cannot produce too much of it. It only takes people a little while to awake to the fact that a man understands his business, and that is the man with whom they want to do business; but you will find everywhere people who do not know the first thing about a cow who will try to tell you how to run your business. Tell them to move on; never keep a "kicking" customer. If you cannot please him, get rid of him.

To the dairymen I will say one thing, a little verse I learned as a boy in college, which is:

In order to drive the nail boys
Hit it on the head,
Strike with all you might, boys,
While the iron is red.
If you have work to do, boys,
Do it with a will,
For they who reach the top, boys,
First must climb the hill.

I thank you.

The Chairman: The best part of this program is the discussion. Mr. Vanderboom spoke of Dr. Warren last year. The doctor said we dairymen were rather a lazy crowd, that the udder and back of the cow should be clipped and that did not cost much, we ought to do something else that did not cost very much, and at last he said the extra work cost so little that we could afford to sell milk cheap, so the men present began asking him questions. Along about the middle of the afternoon a prominent dairyman dropped in and we asked his opinion. He said he did not know what was going on and the doctor said, "I will tell you. You have been to a county fair and seen a nigger put his head through a hole and every body throw things, well I am the nigger." Mr. Vanderboom can stand it so if there are any questions you want to ask, or anything in which you differ with him, let us hear from you. It may be up in Marquette he has no competition and can tell a customer to do this way or that way or not do it at all, but in other parts of the state there is more than one milkman in town and sometimes it is

not so easy to do that. The other day one of my customers asked me if I would not have my man stop at a competitor in town and bring her a pint of milk that day.

Mr. Bartlett: I would like to ask Mr. Vanderboom whether he thinks it possible for milk to be taken to the city in cans and bottled there, and have a strictly good article?

Mr. Vanderboom: I would think you could put up a good article that way provided the milk man knew his business, and delivered the milk to the bottling concern cold. The two main things in milk production are cleanliness and temperature. If the farmer who produces the milk is all right on the cleanliness part and will use a cooler of some kind, or if he has no cooler put his cans of milk in cold water and stir it until cold, I think it can be delivered in good shape and bottled in the city.

Mr. Bartlett: The reason I asked this question is because health officers in my town have insisted that the milk supply must be bottled at the place of production, and we would like to know whether it is necessary to do that or whether milk can be supplied clean and get a really wholesome article and be bottled in town.

The Chairman: Mr. Bartlett has the crankiest health officers in the state, in Pontiac. They are exceedingly particular.

Mr. Vanderboom: I think the other fellow is right and Mr. Bartlett is wrong. Tom Jones may bring in a first class article that may be all right but Tom Smith may bring in bad milk and when the milk goes to the consumer you cannot say "one-half is good and one-half is bad, we will split the difference," but the good milk is as bad as the poorest you have; but if it is bottled on the farm you know who bottled it and can find out how it was bottled, handled, etc., but if two or three parties bring milk to one place and mix it together, and even though those parties may have been careful of it, you do not know what was done before it was brought there.

Mr. Bartlett: What about Tom Jones' milk that was bottled out on the farm?

Mr. Vanderboom: If Tom Jones does good business on the farm, all right. I think it is quite right that we have inspectors and we should have inspectors, but our force of inspectors is too limited. We have to go after those things stronger if we want the right article. Some complain we are spending too much money on inspectors. We are not spending one-half enough yet. An inspector once made a suggestion to me which I think was worth a thousand dollars to my trade. Two or three years ago at Marquette we had inspectors for sixty days and no one can tell how much good they did. Last year we had one man collect a fee of a dollar.

Mr. Warren: My experience has been that half the inspectors do not know one-half as much as the farmer.

The Chairman: Mr. Bartlett's question is in regard to bottling milk at place of production as against bottling it at some other plant.

Mr. Vanderboom: I said I thought it safe to bottle it at a plant provided it was cooled immediately after being produced.

Now my friend spoke about many inspectors not knowing as much about the dairy business as the farmer. Those men are politicians and

not inspectors and I hope the state of Michigan will never send a man out for an inspector who is not a dairyman.

Mr. Warren: Let me say that the only inspector that has ever been to my farm has been nothing but a student. He came out there and told me what I ought to do and I told him what I would not do and did not do. They cannot send students out to tell me how to put out milk. If they send out an inspector that knows more about it than I do I will be only too glad, but to send the students out that way every year at the state's expense for me to educate, I have no use for them.

Member: The city inspectors are not allowed to go outside the city. We have to call on the state inspectors to inspect in the country.

Mr. Horton: Any city inspector has a right to go to any farm which produces milk and sends it to a city in which he is inspector. He can go to the farm and inspect conditions and condemn milk when he sees fit.

The Chairman: Mr. Horton is an inspector that is not a politician.

Mr. Horton: Mr. Bartlett asked a question in regard to bottling milk, either where it was manufactured or at the place where it was started from to be sold, as I understand it. I think the reason for that is that in some cities we find men taking their cans of milk and their dipper and they bottle along the road, where everything contaminates the milk. I think if milk was taken from a stable that was clean, where the cows were clean, the cans were clean and kept closed up and cold until brought to the bottling plant, in my opinion it would be as good as if bottled where manufactured. That is my opinion.

Now Mr. Warren spoke something about the city inspectors going to the country. I happen to know of a city not a thousand miles from here where they have no authority whatever to go outside the city and if an inspector went out he would go on his own responsibility. I have urged the people to make it obligatory upon the inspectors that are here in this city to visit the dairymen here, and they have never even asked or authorized their city inspector to go outside the city and he cannot do it. I know this from experience. I asked a health officer of this town to go with me and visit dairies which I knew were not producing good milk. I can clean up those dairies but I believe that the city authorities should cooperate with us and I believe it yet and I do not believe the state inspector can do as thorough a job as if he were backed up by the city inspector. In an adjoining city the inspector rode with me ten days and we visited every dairy that furnished milk to that city, but I could not induce the inspector of this city to go out of town; he simply said he did not have the authority and the mayor said "We have not the authority to send you out and you had better not go."

Inspector: I happen to be one of the dairy inspectors for Detroit and I want to say in this connection, while we have no authority to go outside of the city we do it and we place our authority in this way. We say to the farmers, "We are inspectors from the Board of Health," and get his permission to inspect there, but if he does not give it to us we pass on, but if he refuses inspection we simply say "Mr. Jones, you cannot send your milk into Detroit." That is as far as our authority goes and it seems to work very well. If he continues to send his milk we camp on his trail and throw it into the sewer.

Mr. Bartlett: That is exactly the thing they should do. I am heartily in accord with the sentiment expressed by this gentleman. I believe every inspector has the right, under the laws of the state of Michigan, to prevent coming into any city samples of milk that are not suitable for food. I heartily agree with the health officer of the city of Pontiac when he goes out and examines the dairies, condemns those that are not sanitary, and refuses the milk from the dairies that are not sanitary, but when he says that good milk, clean, as pure milk as ever came into Pontiac cannot be sent there at a temperature of 40 degrees bottled and be sanitary, I think he is entirely mistaken and it is wrong. The source of dirty milk is at the dairy, is at the barn, is in the dairy room and in the premises where the article is produced. If it is bottled out there and sent in it is more likely to be bad than if it is not bottled because there is more machinery to go through. If a man is filthy, he will be filthy about the bottles, will be filthy all around and probably a lot more filthy than if he put out a reasonably clean can and sent it to town. So it seems to me that so far as this is concerned that really the better way in a city is to have one concern, or perhaps two or whatever number are necessary, to handle the milk at that point.

The Chairman: Mr. Morgan is running a pretty fine plant in Saginaw and he might give his competitors some points as to how to handle customers in order to make a fortune.

Mr. Morgan: I do not know that I can add anything to what has been said. I think I agree with what has been said in regard to some of the inspectors not being competent. We have had different inspectors visit our farm and have had some who understood their business thoroughly, but we have had students with us who told us we could not produce milk without white suits and some other things, and that made us rather tired.

Member: I would like to offer a suggestion on another line. What are we going to do with the farmers that are back from the city and we have no direct reason to send an inspector out to see them. I believe the farmers farther away from the city would be glad to have an inspector drop in and give some little advice; it would be better for the butter man, better for themselves and for our country at large. There should be some way so that the farmers far away from the cities could be helped.

The Chairman: I have always heard that as long as the city consumer was not willing to visit the source of supply, where the milk was obtained, just so long the dairyman would not do the best he possibly could. I believe in fifteen or twenty years that not over a half dozen people drove out to my farm to inspect their source of supply, to see what they were buying, where they were getting it. When you think of how much more careful people are when they buy their other foods than they are of the milk supply their family uses, I do not believe it is much of an object for the dairymen to be so anxious for the county inspectors or the city inspectors to come to their farms, and where a city cares so little about the proposition that they do not have an inspector, I am speaking particularly of Bay City. There has not been a city inspector for several years here but it seems to me it is the consumer that could handle this whole thing because I know of nothing that will bring a milkman to time so quickly as to begin to lose a few of his customers. It has a very good effect on him.

Mr. Durand: I was in Iowa the other day as this inspection business is really a sore thing out there. One man got up and said that the laws in Iowa did not permit the city to look after the dairies, that comes under the pure food department. This man was getting very short tests of butter fat and he did not know whether to thresh the inspector or what he would do, but one day he asked him to come out and have a drink. The next day or two afterwards he gave him another drink, and then he gave him something else. The inspector said "I have not tested your milk for butterfat, send me a sample." He sent him a sample and got a test of 3.6% on skim milk.

The Chairman: I think it is too bad Mrs. Durand told that story when we have two or three inspectors in the room. They might be expecting something. There is one thing though that we are apt to shy stones at inspectors, politicians, etc., and I wonder if it has ever occurred to the dairymen that if they took hold of the Dairymen's Association with a vim and made it a business, its endorsement would be worth while and it would be a pretty strong power in this state. Mr. Vanderboom says there is a great deal of capital in this state invested in dairying and it represents a large amount of money. That is true but so long as we all stand separate and do not get together, we can never expect to get the credit or the power that we ought to have representing such a large portion of the state's industry; and if this Dairymen's Association went after the matter rightly, had a business meeting and set forth our demands and see that they were backed up by a good legislative committee, we could derive more benefits for the Association and see that we were given credit for what is our due.

Inspector from Detroit: I want to make this point, that as a member of the Michigan Veterinary Association we have adopted a plan for some years of getting the governor to appoint a state veterinarian. The governor has listened to us, he asks for a suggestion each year when the veterinary is to be appointed, but the Association should give him the names of two or three whom it would recommend to be appointed for the desired position. I think if the Michigan Dairymen's Association would suggest to the governor suitable men for inspectors he might be guided in his appointments of suitable men for the positions. I think he would be glad to do it.

The Chairman: If there is nothing further this afternoon we will stand adjourned until 8 o'clock this evening, when the meeting will be called to order at the Y. M. C. A. Auditorium.

TUESDAY EVENING SESSION.

Meeting called to order at 8 o'clock with Vice-President Vanderboom in the Chair.

The Chairman: I am very glad to see so many intelligent people here this evening. We are particularly favored this evening in having a lady speaker of wide fame, not only a lady speaker but a lady in the dairy business and perhaps she will tell most of us something that we do not know about dairy business, about dairy cows, their care, etc. I will cut this introduction very brief as perhaps the lady needs no introduction from me, and will introduce Mrs. Scott Durand, of Chicago, a practical dairy woman.

MY EXPERIENCE AND MODES IN DAIRY FARMING.

MRS. SCOTT DURAND, CHICAGO.

Mr. Chairman, Ladies and Gentlemen: When a woman is invited to speak at such a meeting as this, before a body of men whose pursuits affect the very vitality of our nation, honor is indeed given to my sex, and I am truly proud of it. I appreciate more fully, perhaps, the privilege of speaking at such a meeting than any of you do in listening to me.

There is no longer found the apathy or inertness in the business, political or social world for either the son or daughter of the nation. A man or woman who does not today throw aside the selfish life of living only for himself or herself, and who does not think of the greater good of benefiting the people at large in all that pertains to an wholesome and honest existence, is no true patriot of his country.

I do not believe that in the days of the Revolution or in the days of our own Civil War were the questions of more serious consequence than the questions that present themselves to us today. Our young nation has pushed ahead at such marvelous strides,—amid such tremendous prosperity,—that our people are apt to become satisfied that such conditions will continue to be enjoyed in the future.

But the security of our nation today rests in the one word, *honesty*. It is no longer the Republican or the Democrat, the Catholic or the Presbyterian, the white or the black. It is the honest man against the dishonest man, fair methods against unfair methods, the openness, frankness and justness of competition against the tricks, schemes and cunning of the interests. It is in arousing the conscience of our whole people to such an extent that politics may be purged of its rottenness and bribery, that business may be cleaned of its dishonesty and fraud, and society of its impurities and intemperance, that the least amongst us may be given protection for growth and success. And it is the duty of those who through experience or fortune have learned a better

way, to impart that better way to those who need the knowledge, and it was such thoughts as these that instigated my interest in the production of a clean and pure milk. Constantly before me for years was the unkept dairy cow, covered with its own filth,—a dairy cow only in name, for in reality tens of thousands are merely boarders. Then the picture of the average cow stable, with its dust and cobwebs and its dirty milking stools, the ignorance in properly feeding the dairy cow, and the harsh treatment sometimes adopted in the care of the cow, the unsanitary and uninviting condition of the surroundings, the badly washed utensils and careless handling of the same, and last, the importance of a proper price.

Now, to begin with, we want to talk first about the intelligence of dairy farming. The time has come when we must no longer have the ignorant, dirty dairy farmer, the man who simply works in a shiftless way and uses up a lot of energy in doing the wrong thing. We want the dairy farmer who will work with his head and will use that energy in getting good results, not only in the production of a clean milk but also in a profit to himself. This standard must be raised so that the world at large may think of the dairy farming interest as a most honorable one, and not think of it as dirty farming that we so often hear about in the cities, killing our children, because you know it is frequently claimed in the daily papers that the dairy farmer is killing the babies.

The two crucial points are the unprogressive dairy farmer and the unprofitable cow. These are the two things we want to get rid of, the unprogressive dairy farmer and the unprofitable cow, and I think it is most essential that in these organizations, dairy farmers associations, that we band together to raise this standard, and if your neighbors or any of your members are not doing right, help them to do the right thing, show them the proper way, and then after all if he does not care to do what is honest and right in this dairy farming business, see that he is put out of business and gets into something else that is not as serious as the production of milk, because the whole honor of the dairy farming business rests upon the methods in which it is done.

The same requirements are demanded with the production of milk for drinking, or market milk as you say, as for production of milk for the manufacture of butter and cheese. I think one reason we have had such inferior butter at times is because of farmers handling of the hand separator. I have passed through sections of land and stopped at farm houses where cream is sold, the cream being separated with the hand separator, and I have found the condition of that separator such that it is no wonder we have inferior butter. I know of one instance where the man told me he washed his separator once a week, I know of many instances where it was only washed every other day, and seldom have I found it washed twice a day. I found separators in cow stables with the cows, where the bull comes in and does the work, and a little water is run through the separator, and we cannot with such methods secure good butter.

The next point is cattle; the breed of cattle. A few weeks ago I was down in the corn belt of Illinois. They are very anxious down there to get the farmers to either put on the beef cattle or the dairy cattle, because, as Mr. Vanderboom said today, our men have been

robbing the soil. It is positively shocking in the state of Illinois how in that corn belt soil has not been robbed. They must get the cow, they must get cattle onto their fields so they can put the rock phosphate on with the corn barn manure, and while in the discussion the vice president of this county institute asked me how I found my dual purpose cows doing. It was rather a shock to me to have the vice president say such a thing. I looked at him rather curiously and said, "I am proud to say I never owned a dual purpose cow." This man was a great advocate of the dual purpose cow, it seems. Then he said, "But, Mrs. Durand, why don't you want the dual purpose cow?" If I am going into the dairy business I want the best breed of dairy cows; If I am going into the beef business I want the best breed of beef cows, but I do not want a combination of the two. You men here in the dairy business want to select your breed, either the Holstein, the Guernsey, the Ayrshire or Jersey, which ever breed you want, decide for yourself, and then by all means stick to that one breed and by all means have a pure bred sire and raise your calves. I know from personal experience that the very best cows I ever had were of my own production, because that calf has been brought up on the place under my care, young heifers giving fifty to sixty pounds of milk with their first calves. Raise your calves and improve constantly.

Now the cow testing association is, I think, the solution of the problem of inferior cows. I do not believe that there is today a more important work than this cow testing and it should be encouraged everywhere. Weed out the undesirable cows. Just think of the number of cows that not only do not pay their board but are costing the man that keeps them. Why it is hard enough to milk three hundred and sixty-five days in the year, twice a day, and feed that cow, without having to pay something for the pleasure of doing it, and yet there are a lot of men doing that throughout the United States, and how can they tell unless they have calves and the Babcock test? You must know your cows if you are going to be successful, and I feel sure that the whole success of my business in a money making way was because I watched my weigh sheets and watched the butterfat of my cows, and I kept the heifers from the most profitable cows. When I found cows that had not been doing what they should do I got rid of them. I could not afford to keep them.

Next comes the health of the cattle. Someone said today he thought the dairy farmer was the best judge of his own herd, so I think the dairy farmer is the best judge of the health of his cows. Working day after day as I have done and you have to do, you cannot but detect if your cow is not in a healthy condition. If the hair is rough, the eye is not bright, the skin is not loose, you know the cow is not in a perfect condition, she continues to go down in her milk and is not going to pay you, get rid of that cow; but if a cow is sleek and her eye bright and has every indication of feeling right by chewing her cud, eating well and giving a full supply of milk, keep that cow by all means. I am going to tell a little story right here in regard to this tuberculin test business and myself. I presume most of you believe in the tuberculin test. I have always believed in the tuberculin test because I was taught so in the agricultural college, they told me it was all right and absolutely reliable in every instance. A farmer was

taken sick and his wife sent for the family physician. The doctor came, took the temperature of the patient, took his pulse, and while he was doing that the good wife went out to get some hot water. During her absence the sick man fainted and the doctor thought he had died, so he went out to find the wife and as he came to the bedroom the doctor said "My dear woman, I have some sad news for you, your husband is dead." At that moment John rose up in bed and said, "It is no such thing, Mary, I am not dead." "Hush, John, the doctor knows best."

This tuberculin test, if you want it, have it, but see that you get a good reliable man to do it and that you get pure tuberculin. I don't know how you are here in Michigan, I know nothing about your politics in Michigan, but I know that in Illinois we cannot have the compulsory tuberculin test, it is too much politics there, and I have had two experiences myself this last year where ten cows were condemned and not one of them has tuberculosis, and the very same men that condemned them examined them at the stockyards, not knowing they were my herd. I had a special butcher and I had reliable men examine them, besides the men who made the test in the first place. Now I have coined a word. I felt those cows were not tubercular and after they were condemned I worried a great deal about it, and then the thought came to me "It is not the tubercle baccilli I have to contend with in this instance, it is simply the 'homo grafti' baccilli," and in Illinois we have that very bad, so I think you will have to watch out for that germ first.

The poor farmers in my city of Chicago, who are producing milk, have been between the devil and the deep sea, they have had pasteurization or the tuberculin test. It is very nice for the man who sells pasteurizers, and for the man who wants to make the tuberculin test it is very nice, but I do not know what is going to happen to the farmer. They come to the herds and want \$16 for testing 25 cows, \$4 for expenses is \$20, and only certain men handle it, and I assure you it is a very fine business. But those poor farmers, John Smith who may have a mortgage on his implements, is losing eighteen out of twenty cows, and I do not know whether the packers have anything to do with those cows going to the stockyards or not, but we in Illinois are not ready for this compulsory testing, if we want it individually it is a different matter. If a cow is unhealthy I will not let that cow go out of my herd, but isolate her, because it has never been proven that bovine tuberculosis is communicable to human beings. If Koch himself, who invented this tuberculin test, said it was not proven what is the sense of so much unnecessary excitement about it? I think it is much more essential that the udders of your cows are in good condition, so as not to let the dirty milk and bloody milk get into your pails, and you cannot afford cows with bad udders. Watch your cows carefully, and my experience is never to put anything into the udder to cure garget. If your cow has milk fever that is a splendid thing to do, but if you find your cow is showing a little inflammation of the udder the best thing to do is to get hot fermentations, and sit there and get rid of that inflammation. The first twenty-four hours is the most crucial time. I have sat hours treating the udder of a cow with hot fermenta-

tions and then bathing it with oil, milking it out and watching the udder.

As Mr. Vanderboom said today, this cheesecloth, absorbent cotton, etc., is all nonsense and really the bacteria count is much lower where you keep your cows clean and use open pail if small opening, but I like the Gurler pail with the cheesecloth on to milk the foremilk on, to see if there is any garget, and if there is, milk the bad quarter into the spout of the pail, not on the cloth, because you want the cloth clean for the next cow. That will insure the milk healthy and pure as it should be for a child.

I do not believe that the dairy farmer realizes the importance of the scale and the Babcock test for his own good and his own pocket. I feel that every person who owns dairy cattle should weigh the milk. It takes only a short time and it is a great satisfaction to know what your cows are doing.

As to the care of cattle, as Mr. Vanderboom said today (in fact he said everything today that I wanted to say tonight) I think the brush and comb is a nice thing to keep the flanks and udders cleaned right, and on rainy days when you cannot work in the fields it will be a great satisfaction to clip the udder and flanks and clean your cows. I find that we must manage to get a better way of bedding our cows so that we will not have such dirty cows in the morning as we find in the stables, especially in winter when they are housed so much, and I believe Governor Hoard's scheme is the best I have ever seen. In front of the back feet of the cow he has a small ridge so that the cow's back hoofs are up against this ridge; the cow cannot stand over the ridge; it is too short from the stanchion, so it stands back; when the cow lies down she has to draw herself over that ridge to get away from it and draws herself away from the gutter and ridge where her tail is, and I believe that is the solution of keeping our cows clean when they are in the barn in the winter. Then use disinfectants freely. I think it is a splendid thing from all standpoints, and now there is an odorless disinfectant which does good work without having that disagreeable odor in the stable.

Now I want to come to the crops. I do not know what you are doing in Michigan in regard to alfalfa but I do not believe that I could run a dairy farm without alfalfa and ensilage. You see I am only a young farmer, only six years, but I have sixty-four acres of alfalfa now. I got year before last an average of six tons to the acre and at \$20 a ton that is profitable. I believe the alfalfa will grow anywhere. The way I have done has been to plant it with my oats in the spring, and in that way got oats for my horses. When I first started in some weeds got in my alfalfa and I disced it, but that was not satisfactory, but by using the spring tooth harrow and harrowing it as one would cultivate corn I got good results. After the third cutting, which is after the first of September, I go personally with a sack of alfalfa seed on my shoulder, and sow my alfalfa seed and as that comes up it has the protection of the next growth of alfalfa. Last year we cut four crops of alfalfa. The first crop, owing to the freeze which took all the apple blossoms in the Spring, took our alfalfa; the second was a tremendous crop, the drouth took the third, and our fourth crop came from our late fall. I am a little afraid of this winter because we

have had a great deal of thawing and freezing, but I always take the manure in winter and place it where it will rot and then with a manure spreader cover over the alfalfa field. I cultivate my alfalfa as I cultivate corn.

Of course we all know the value of ensilage and I always have had ensilage for my summer feeding. The cows are turned out from the 20th of May to the first of July. We never keep our cows out during the day in summer because they are better inside, and feeding the alfalfa they give a better flow of milk and are kept away from the flies; we turn them out at night during July and August. My cows do very well on ensilage, alfalfa and corn stover. I lay great stress on corn stover. I have always twenty acres of ear corn; I need that for my horses, chickens and hogs. Then I take the fodder and either run it through the ensilage cutter, or if I am shredding my corn use it that way. The cows need a roughage such as corn stover.

Now I must tell you the way I water my milk. It is by giving my cows lots of salt and they drink a lot of water. Mr. Vanderboom spoke today of the cows going out to water. They will not drink much water outside in winter and it is far easier to have running water in stables, and I think you would have less abortions and less accidents if you did not let your cows crowd around a tank. They are very greedy at times. If you water them in the stable, especially in the winter, you can take the chill off the water with a little steam, and every farmer should have a small steam boiler.

I have come to the conclusion that I have been feeding my cows too much grain. I have great respect for Hoard's Dairyman, but through it I was taught to use one pound of grain to four pounds of milk, but I am convinced we are overfeeding our cows with that much grain and I do not believe I will ever give my cows more than eight or ten pounds of grain a day no matter what amount of milk they are giving.

I like middlings very much indeed, and I like Buffalo gluten meal. I find I can sell my ear corn at a greater profit and buy ground feed without the necessity of grinding the corn, and the Buffalo gluten meal does very good work, and if we can get good middlings I think they are excellent.

THE FERTILITY OF THE SOIL.

This old farm I bought had sixty acres under cultivation for forty years and was worn out. The first crop of corn I had in one field hardly gave forty bushels, and I was convinced it needed rock phosphate. Why are the American farmers permitting the other countries to take our rock phosphate? Do you know what England is doing; that selfish England? She is not letting the deposits in Nova Scotia be used now, but is bringing from the United States deposits first, and right here I hope the farmers will do all they can to stop the Canadian reciprocity. Now I found, after putting this rock phosphate on that field, that last year I produced ninety-two bushels of corn. You can see we need it and we must not let those foreign ships go to Florida and get all our rock phosphate. Then there are other conditions. For instance, I had a field that had been a slough. I saw it needed lime and I put on a good application of lime. We must preserve and conserve the fertility of our soil and, as Mr. W. C. Brown said, the time is coming when the

line of production and the line of consumption will come together and cross, and it is coming there now. We must have intensive farming, must have smaller farms and produce larger crops than we do. When a woman, only a farmer for six years, can produce ninety-two bushels of corn and eighty-eight bushels of oats, actual measurements, and I have for the last three years the record of the threshers, and my ensilage give nineteen and twenty tons to the acre, and alfalfa six tons to the acre, I am sure you will agree if a woman can do that a man can also.

ROTATION.

I believe in rotation with alfalfa because I want my entire farm inoculated with alfalfa bacilli. I am not a gentleman farmer or lady farmer, and do not believe in expensive certified farming or expensive buildings. When I took the farm I added to the buildings that were there and had them simple. One reason I had them simple was because my husband limited me to so much money and would not let me borrow from him. I was glad I did not put up higher priced buildings because I had good success with my plain buildings. Men came there and did not like my buildings, but they were clean and white-washed and I had concrete floors and I thought everything nice; but a farmer would come and see my buildings and say "My buildings are much better than yours. only need a little cleaning up," and he would go back and whitewash his own buildings and take the cobwebs off and have the same thing and it was an incentive to see one could produce good milk under ordinary conditions. My buildings burned down and I am going to put up some concrete buildings this spring, but they will be very inexpensive and will be models for the dairy farmer who wants to have an economical dairy plant instead of demanding the dairymen to put on white clothes because the certified milk commission tells us so. Clean overalls are just as nice. We want good practical sense that anybody can do and milk not for the millionaire baby but good milk for everybody's baby.

In Illinois they think the round barn is a fine thing. I myself do not like it, it makes me dizzy. I think if you build your barn high enough so you will have plenty of sunshine, and I urge milk producers to organize the sunshine club. The King system of ventilation is good. You can put it in for little money. The fresh air comes in at the top and the foul air goes out at the bottom and it gives plenty of air to your cows. We all need plenty of fresh air, and the cow needs it. Cows go down in their milk if they do not get plenty of fresh air, and here is for the men with the green badges; nothing is nicer than the carriers. The manure carrier and feed carrier should pay installing, and anybody can put these in in time.

Then the cooling room. That is the most essential thing to have near the end of your barn; a room where you can cool the milk, and a very inexpensive cooler can be put in, but I think it is most essential to get the milk over the cooler as quick as you can, and if you have a small pond nearby it is very nice to have ice in the cooler. Have a wash basin in the stable, with flowing water in the stables, and there is no reason why a farmer cannot have a gasoline engine to pump the water and have a bathroom in the house, and also let the water flow in the

stable, with a small boiler that will generate steam to sterilize your tins and take the chill off the water. You must remember that the solution of the good milk question is in bottling the milk on the farm and if a farmer will put his name on the bottle the consumer would know where the milk comes from, and it is up to the consumer then to see that the milk is as it should be. A farmer could get eight cents a quart for his milk, produce that milk and bottle it easily with a small bottler, a four bottle bottler, a six bottle or eighteen bottle bottler whatever he may need, and when they talk about those large bottling plants being clean I cannot help but think that sometimes they are the dirtiest places I have even seen. Nothing is nicer than simplicity and having the bottling done right at the farm and properly iced.

Now I want to talk about the sewer connection. We can have all those things without any great expense. For water connection have a gasoline engine; the gasoline engine can also generate the electricity, and every farmer should have electric lights in his stable. I bought my gasoline engine and dynamo for \$92. It is very nice in the morning, especially if you have a hired man; there is nothing nicer than to turn the electric lights on so he does not go to sleep in the morning milking his cows.

I think there is more trouble with the straining cloths than anything else. I like to use cheesecloth and I have a particular way of washing this cheesecloth. Buy your cheesecloth by the bolt and strain your milk through the cheesecloth, changing them every five gallon can. The nicest thing to have is a porcelain-lined kettle and when you take off the soiled straining cloth put it into this kettle; have another kettle with the clean straining cloths, then in washing them rinse them out with cold water first, then soap powder and hot water; rinse with cold again, put them on the kitchen stove and boil them. It is essential that those cloths are properly cleaned. I believe that in not more than one case in one hundred the straining cloths are cleaned as they should be.

I have contended the farmer should get four cents a quart for his milk in the can and eight cents when bottled, and if it is especially fine add two cents more, and the very best milk in Chicago should cost not more than eleven cents. My milk was sold for fifteen cents—four cents went to the distributor, a cent went for the delivery in Chicago on the railroad, and that left ten cents for me on the farm. I made over \$10,000 with a herd of sixty-five milking cows one year, and I made too much money. Two cents a quart should come off of my profit and two cents off from the distributor, and that would make eleven-cent milk in Chicago that everybody's baby can have. Fifteen-cent milk is not necessary. This milk bottled at the farm should bring eight cents, and 200 or 250 quarts would make an income of \$300 a month that a farmer can lay aside. I have figured it very closely in most localities and I believe I figure correctly, and I believe he could pay his living expenses from what he pays for his swine and chickens and what he produces extra on a farm of 160 acres, and would not have to draw on his milk check. There is more money today in the dairy farming industry than any other business under the sun. Do the thing right; have the right cows; the right feed; the right price and get a reputation for yourself, and there is lots of money in it.

Now about the pasteurization business. I think the dairy farmers of the United States should rise up against pasteurization. Why gentlemen, it is an insult to every dairy farmer, pasteurization is. To say our milk has to be pasteurized! What does pasteurization do? It does not get the dirt out of the milk, there is only one chance in one hundred that it is ever pasteurized right. Commercial pasteurization kills the good germs and leaves the harmful ones to grow; it does not do any good. It is bad for children but it is good for the man selling pasteurizers and the dealer in the city who saves in a year on the cost of sour milk enough to pay for the pasteurizer. Rise up every man and say "My milk is so clean it does not have to be pasteurized, and it is an insult to me to have it pasteurized."

Now the consumer; the right of the consumer. I believe really when we come down to facts that the consumer is the one who is at fault in not demanding that the milk is right. I know of a certified milk in the city of Chicago, one year ago last summer, that killed a baby, milk that was bringing 15 cents a quart. It is a very serious question and it is up to the consumer to co-operate with the dairy farmer and, as I said particularly to the milk producers of Chicago, we do not have to be lashed and threshed. Cooperate with the dairy farmer. The dairy farmer wants to do the right thing. Cooperate with the Board of Health, with the physicians, with the consumers and the dealers. All cooperate together; meet together and try to see the proper price to demand for a milk that is what it should be. It is up to the dealer, to the producer and to the consumer, and let's try to cut out this prejudice. I find it with physicians in the city. A physician will be prejudiced against one person or will favor another producer. This milk that killed the baby was recommended by physicians, because they were friends of the producer.

Now in regard to the inspectors. I do not know how your inspectors are in Michigan, but I know there are three sets of inspectors with us, the pure food inspectors, the city inspectors and the state inspectors. I have spoken in nine states of the Union this winter, this is the forty-second address I have given, and I notice as a rule the city inspectors are fighting the state inspectors, and the state inspectors are fighting the city inspectors. We must do something to get this down to a sensible working basis and get rid of a lot of inspectors that do not inspect. There is too much politics seen in regard to inspectors, and they really do not know their work. I believe the cow testing associations will do more good than all the inspectors in the country.

In regard to the agricultural colleges and those young men that come from the agricultural colleges. With all due respect to the agricultural college, I find there is a great laxity in the practical training of the student. I know a great many of those young men have come to me, and I have heard the same thing everywhere, and I believe if the agricultural colleges would cooperate and get a certain number of farmers in the state with whom those young men could take a two-year course, it would be a good thing. Many a boy will not go back to his father's farm because his father will not pay him, and that is not right, the boy should have something for his work, but I believe if those young men could take a two-years training as part of the course before they received their diploma, it would be a splendid thing. A

young physician has always to go to the hospital and take a course of training before he begins to practice, lawyers the same way. Why should not the agricultural students? I contend it takes two years to get the large head of many an agricultural student down to normal size.

In summing up this question of producing milk, it is in reality the man behind the gun where all success lies. Dairy farming under same conditions may be operated at a loss or at a gain, it depends entirely upon the man behind the gun.

Let us have a man with insight, energy, ambition, honesty—a man progressive and alert for every new idea that will pertain to good work and good results, and great success can not but be attained. Then let everyone of us in this dairy farming business try to help each other, to command respect for ourselves, to gain an enviable reputation for advanced dairying, such as the breeding of better dairy cattle, of keeping upon our farms only a pure bred sire and a profit-earning cow, raising the proper feeds for a balanced ration, to have clean, well ventilated stables and clean, healthy cows, to be careful and conscientious in the cooling and handling of the milk; then may we have for ourselves an happy, contented, interested life of real worth to mankind and become a true patriot to our nation.

I thank you for your attention.

The Chairman: Now, ladies and gentlemen, I hope you have all enjoyed the talk as much as I have. I always do enjoy a good address and particularly when it comes from a woman, and more especially when it comes from a woman who has been tilling the ground. She is not like the students from the agricultural college, who, as she says, have the "big head," and from the figures she has given us about the crops she is producing on the farm we are not surprised that she is making money in the dairy business. That is the greatest trouble with the average dairy farmer, he is not producing enough stuff on the farm for his cattle. He is trying to do too much and has not made a careful study of the situation. They think about a lot of things but do not get into the harness. We have had the pleasure this evening of listening to a woman who has been in the harness and been plowing the ground.

Our next speaker this evening is a man who needs no introduction to you people; a man from the agricultural college, and I assure you that if the students go out with his directions they will not go out with the "big head." The gentleman who is to speak next, although I have not been a student at an agricultural college except in an incidental way, has given me some very good pointers and has never given me any information that I have not found to be correct. I take pleasure in introducing Dr. Marshall, of the Agricultural College.

THE RELATION OF THE CONSUMER TO PRODUCER.

DR. CHAS. E. MARSHALL, AGRICULTURAL COLLEGE, LANSING.

The subject assigned me for discussion this evening is one that is fraught with many difficulties.

The consumer's part in the securing of pure milk is ill-defined, and it is questionable whether at this time any valuable suggestions can be made which will assist in bringing about better conditions. One of the most precarious features of a topic of this nature is that it presumes to urge recommendations, and it anticipates some scheme by which it will be possible to interest the consumer in the production of the milk that he employs.

In undertaking the discussion of a problem of this kind, we presuppose that there are two human agents to consider. A commercial transaction exists, placing as it does on each extreme, parties, who have individual interests to conserve, and who are doing their utmost to foster their own financial ends. On the one hand, the consumer is more or less dependent upon milk as a food, and is to a certain extent at the mercy of the producer. On the other hand, the producer is endeavoring to live by the product of his efforts, and he, of course, strives to make as much out of his activities as it is possible. Each has his rights, each his faults.

We may assume, therefore, that if a fair, open discussion of the question—what role does the consumer play—that it is impossible to separate the consumer from his intimate relation with the producer. If it were possible to have producers whose aims are the highest, there would be little cause for contention. As a rule, this is not the case, and if we are to include all humanity in the scheme, as we should, it would be impossible at the present time to measure satisfactorily milk by our highest ideals.

We have represented in Medical Milk Commissions efforts which are working towards ideals worthy of consideration, but the milk secured will reach out only as far as prescription milk. In other words, the Medical Milk Commissions will never be able to expand to the extent as to embody the whole of community. Besides the Medical Milk Commissions, there are other efforts put forth, and occasionally we have individuals who are representatives of the highest order.

This association has lost in one of its members a man who knew milk better than any layman of my acquaintance. He also appreciated fully the significance of its production, because he was a producer. At the same time, he understood thoroughly the whims of the consumer, because he was a distributor. He was a patient student of the public demands. Knowing milk so well, and, at the same time, knowing just what milk is capable of doing, his efforts centered on the production of the best milk possible.

During my acquaintance with this man, of over a period of thirteen or fourteen years, his entire thoughts seemed to be centered upon the production of better and better milk at the least possible expense.

He always seemed to feel that no matter what the expense, the milk must be of the highest grade. On the other hand, he seemed to be very successful in securing high prices for his milk, because he put a great deal into it. As a salesman, he was very successful. The one characteristic that has always appealed to me as being truly significant and worthy was that during the entire time I never heard him breathe a word or a syllable which would indicate that he desired in any way whatever to take advantage of consumers; in fact, he was always ready to take back milk which proved to be unsatisfactory and make good. Anyone familiar with the production of pure milk, and knowing what the production of pure milk means, can well appreciate this openness of the man's character. If our milk producers were of the type of Ira O. Johnson, the consumer's role would not have to be considered. There would be only one factor militating against the scheme and policy advocated by Mr. Johnson—that is, the expense involved.

Mr. Johnson's purpose was to furnish milk for infant feeding, and not for people in general. Realizing as he did the significance of providing good milk for infant feeding, you can well perhaps see the force of his specializing in this field; yet the honesty and openness of the character of the man aside from this feature makes him truly ideal as a milk producer. Particularly do I wish to call attention to the man's knowledge of milk and milk production. He seemed to be able to see through milk,—see it in all its conditions and all of its possibilities. So thoroughly did he understand it that it was very seldom that his movements were false.

I cannot pass this incident in my address without paying due homage to this man, because I think that his work is paralleled by few, and in value surpasses the work of many who are heralded as public servants. He doubtless has the lives of a great many citizens of Michigan credited to him in his balanced sheet.

One of the great difficulties in the production of milk is the failure on the part of the producer and the failure on the part of the consumer to understand what the product is with which they deal. In order to appreciate the production of milk and its handling, I know of no other way than to become acquainted with it—to know it through and through. It is seldom that you find a milk producer who understands milk. He can tell you about the feeding of cows, about the rearing of cows, the cutting of silage, the production of certain crops, but when it comes actually to the question of milk, his interest lags, and he fails to get to the nature of the product which he has been striving to produce through all of these manipulations. He little appreciates the contaminations which get into the milk, the sources of these contaminations in the stable, and the meaning of these contaminations to the consumers. If he were to substitute his drinking water to the same treatment that he furnishes his milk, I am certain that he would be repelled by the condition of the water. It, therefore, follows that if the producer cannot get in touch with the consumer, he cannot expect the consumer in turn to appreciate the product which he produces.

If a man does not appreciate music, he cannot introduce another man of his acquaintance to it and put him in sympathy with it. It seems naturally true that as long as we have producers who do not get in touch with the product which they produce, and appreciate the

significance of a pure product, that it will be a long time before we can get the consumers to possess a keen appreciation of the product which they use. Legal enactments may control crude violations, may keep frogs and toads out of the milk, but they will do little towards improving the milk supply. It is customary, I realize, to attribute this lack of appreciation, on the part of the consumer to his sole interest in the cost of production and the low price which is paid for the milk.

There is a great deal to be said in this connection. With feeds as high as they are, consumers must not expect to be furnished milk at five or six cents a quart; and if they want a high grade of milk, they cannot expect it at these prices. On the other hand, it may be stated that the cost will increase or grow, and the receipts will increase or grow in proportion to the amount of appreciation manifested, until a pure milk is provided.

If a woman has not reached the stage in her development where she can appreciate anything beyond a calico dress, she is not going to pay more than is demanded for a calico dress. She may accept other products, other kinds of fabrics at the same prices, but she will not pay more. When her tastes have been cultivated to the extent that she passes to gingham to silks, et cetera, she is ready to pay the prices demanded for these fabrics.

It is the same with milk. If a milk is not produced that has been the subject of deep appreciation on the part of the producer, and has the quality in it, the consumer will not be able to see its value. Again, I contend that it is essential that milk producers be experts or specialists of the highest type, and men of the broadest gauge. Besides they must be honest. When the producers reach this stage in their development and a product is furnished which can be stamped as pure, then I believe the consumers will be in position to accept slowly but surely the teachings of the producers. A few consumers can be convinced of the value of pure milk, and will support it when honestly produced. These are the consumers who deserve attention, and should have the best product.

We may guess that the consumer as a rule is more or less indifferent to his milk supply. He does not know how to handle it when he gets it. He does not know the differences between pure milk and dirty milk, between wholesome milk and contaminated milk. These are differences which, while he has them indefinitely outlined in mind, remain intangible because he has no means of deciding between the value of one and the other. He has gotten so that he leaves the matter with the city fathers. The city fathers know little more, do not wish to assume the responsibility for the milk supply furnished the city, consequently they pass it on and delegate the responsibility to some politician who has not yet found a place to feather a nest. This man, as a rule, knows nothing about milk or its production, and yet he is expected to pass upon the quality of the milk furnished the city. Being a cog in the political machine, he strives to divert the minds of the people in one way and another, and endeavors to make them believe that he is a most faithful servant, and has performed wonderful work in their behalf. Summed up, his work consists in playing "harmonious chords for the good of the people" to sing or dance by. In this way, he

cajoles them and makes them feel good. However, little if anything is accomplished.

We have no means of knowing the actual significance of milk to the people of the city measured by mortality units. It is extremely difficult to secure returns of this nature. I noticed the other day in a paper a statement that 500 infants died in Detroit in the past season on account of poor milk. It has been pretty well established that 25% to 40% of all infants born in civilized countries die as the result of impure milk. Besides these returns, we have others, such as distribution of typhoid fever, choleric diseases, diphtheria, scarlet fever, and probably many other affections directly traceable to the milk. Accordingly, summing up, not a small percentage of the mortality rate in any city is due to the milk supply. Perhaps it does not equal in significance the water of the city, the sewage of the city, but it approximates their significance. We have water boards, sewage boards, and so on, which deal with these matters. I am disposed to think that if a milk board could be established, composed of men from different walks of life, and men who are willing to contribute a bit of their energy to the welfare of the public, such a board could establish the values of milk, and bring the consumer and the producer into closer relation. After a time, they would be able to formulate (perhaps not exactly, but quite fairly), the cost of production of pure milk. They would have some notion of what it costs to distribute milk. They would also be in position to say what constitutes a fair price for milk.

In the distribution of milk through a city, there are a great many difficulties. This producer and that producer makes distribution exceedingly costly, because each covers the whole city. Possibly a board of this nature could exert influence towards the amalgamation of the milk interests in such a way as would be operative not only for the good of the producer, but also of the consumer. Such a board must be made up of representative citizens, and must be made permanent. Perhaps it could assume the relation of school boards. Political parties, however, and politicians must keep their hands off. If there are to be milk inspectors, the inspectors should be under the supervision of the employers, and these inspectors should be competent men,—men who know milk production, the handling of milk, distribution of milk, and who know the dangers lurking in milk; men who by their efficiency will grow stronger each year, become more helpful each year, and not mere tramps who are in office for a single year. In other words, I am disposed to believe that if milk production is carried on in a sane and honest manner, and the man who is producing is a specialist in this work and understands his business from A to Z, there will be little trouble in interesting consumers. Under present conditions, consumers are almost helpless in controlling their milk. The consumers in their turn must learn the difficulties in the production of pure milk, must ascertain as far as they can the cost of its production and distribution. They must be able to care for milk after they receive it, learn to recognize those characters which stand for pure milk, and learn to appreciate not only the milk, but the milk producer who is able to provide it.

Appreciation, therefore, on the part of the consumer as well as on the part of the producer cannot help but bring about a mutual relationship that will be very pleasant.

The Chairman: I am sure we all appreciate the sound, sensible, logical talk of Dr. Marshall, and if any of you have a few questions to ask the doctor we will wait a few minutes for them. If there are no questions, we will stand adjourned until 10 o'clock tomorrow morning.

WEDNESDAY MORNING SESSION.

Meeting called to order at 10 o'clock with Mr. Fred Eldridge in the Chair.

The Chairman: It has been our custom to nominate officers Wednesday morning before taking up the regular program, but Mr. Raven assures me there are quite a few of the buttermakers across the way at machinery hall and he has gone over to bring them here, so while we are waiting we will call on a man that the Michigan buttermakers are always anxious to hear, a man I am sure that will be pleased to hear, and the best of it is that this man right now does not know he is going to talk. I have great pleasure in introducing to you Mr. S. B. Shilling, of Chicago.

ADDRESS, S. B. SHILLING.

Mr. Chairman, Ladies and Gentlemen: I assure you that I am indeed surprised at being called to appear at this time before you, and I can hardly understand why this is so. It always is a pleasure for me to address an audience of Michigan buttermakers and dairymen but I would like to have had a little notice that I was expected to talk to you at this time. I knew I was on the program and, as I usually do, will stick about as close to my text as if I did not have one.

If you will just bear with me a few minutes I will endeavor to tell you what I consider a few of the most important subjects before us today. I take it that you in Michigan are no different than people in any other state, that the subjects that are attracting your attention and demanding solution at your hands are the same questions that are agitating the people in every community.

I want to start out with this statement to you and I believe that you will soon all realize it, that is I believe we are on the verge of a revolution in the butter making industry in this country. I use that term advisedly, I say it because I believe it is a fact that we are facing a more critical condition in the dairy and butter making industry than we have ever faced before. If you would go to our markets today you would find in the storage warehouses and cellars in every community upon every street great quantities of butter. They are stacked with butter clear to the ceilings notwithstanding the low prices they have been asking for the goods, the butter is not moving at all. Why? That leads me to a matter which I think needs attention at your hands today, and that is quality. If there is one thing more than another that I would like to plead for today it is quality of the butter product and that is the question that is with us working a revolution today.

You are undoubtedly aware of the vast amount of money that has

been lost inside of the last three months in the butter business. You know that we have today in our warehouses fully sixty million pounds of butter unsold and that butter went into storage at anywhere from 28 cents to 31 and 32 cents a pound, and today it is being sold at 17, 18 and 20 cents a pound. It is not, gentlemen, because there is too much butter in the United States. We are not making too much butter, we never have made too much butter. It is because we have made a quality of butter that has come in competition with a substitute, and the consuming public has left this butter and consumed the substitute.

Think of it, nearly 140 million pounds of oleomargarine sold last year in the United States and sixty million pounds of surplus butter in our warehouses today. Is it not a serious condition?

I claim this, and I believe you will all agree with me, that in the future there are going to be just exactly two classes; we can figure it no other way. You have either to make a quality of butter in your creameries that is in a class by itself, or you have to produce an article that will be in the same class with oleomargarine. You cannot get out of it. The consuming public is the judge and jury that have sat upon this case and has rendered a decision for itself, and that decision is that the public will not take the quality of butter that the creameries of this country are producing at the present time.

This is the situation that confronts you as buttermakers today. Whether you want to or not, you have to do something to produce a finer article than you are making at the present time.

I am pleased at one thing in Michigan and that is that I have heard more reports of whole milk creameries than I had any idea existed in this state. I had an idea that there was almost no such thing in the state of Michigan as a whole milk creamery and I was surprised to hear of the great number you have. A gentleman came to me last night and told me he had done something that he believed never had been accomplished in any state before, he said he had turned his factory from a gathered-cream plant into a whole milk creamery in the last year. That is a wonderful undertaking and the accomplishment of it bodes good for the dairy industry in your state. It is hard for me to believe, and I do not believe that the day of the hand separator is going to pass in Michigan or anywhere else. I believe the hand separators are here to stay. I believe they are a permanent institution in every state in the Union, but there has to be some system devised to get the quality in hand separator cream and butter. You have in Michigan a Dairyman's organization, you have a creamery owners and managers organization in Michigan and I believe the forming of this latter organization is the best move that ever has been made, and I want to congratulate that organization upon the advanced step it has taken in forming an association of that kind. I am not inclined to give them too much credit for it for this reason, I believe they have seen the handwriting on the wall and know they have to do something. They are face to face with a condition they know is going to take some kind of organized movement, and that movement must be a movement of the masses instead of the individual.

I believe we have to pay for the quality of cream what it is worth, we have to get down to that if we are going to improve much; we have to

pay a better price for it; if we are getting a good article we can pay a good price for it. There should be no surplus of butter today. In the entire producing line in everything in this country there is a shortage; we are not producing enough; the line between the producer and the consumer is drawing closer and closer together, and if conditions continue for ten years more as they are at the present time, instead of being exporters of food products we will be importers.

I do want to impress this one thing upon your mind and that is this quality proposition. Whether you feel it as forcibly as we do in the west I do not know, but I hardly think you do. In our western states, in Minnesota, Iowa and Wisconsin, the solution of the problem is much more prominent than in your state. You must know this, that something must be done to relieve the present condition. If we have sixty million pounds of surplus butter on hand today, if there have been hundreds and hundreds of thousands of dollars lost, and we are not nearly at the bottom of the losses yet, there has to be a change. When you consider, Gentlemen, that that loss comes simply from the quality of the product that you are producing, I tell you it is something that is up to you to solve. I believe with your organization in this state, with your creamery managers and creamery owners, that you can do a great deal if you only get together and make a resolution of some kind. While a talk of the combination of that kind is not in good taste at this time, and you understand we have strong national laws against combinations controlling prices, yet I do believe there is no other solution to this question that is confronting you today, that is pay for what you get and do not pay any more. Whether you want to do this or not you are going to be forced into it.

I thank you.

The Chairman: Before taking up our regular order of business in connection with that excellent talk that Mr. Shilling has just given us, I want to mention the meeting of the creamery owners and manufacturers tomorrow afternoon. Whether you are a member of that organization or not I want you to come over to that meeting. Gentlemen, you cannot afford to go home without having attended that meeting; it is going to be worth your time and money; and we will be very glad to have you see Mr. Seidel, the secretary, and leave your money, but we want you to attend the meeting anyway.

I believe the first regular order of business is the announcement of committees.

President Marston: There is a small room over at the armory where your creamery meetings can be held. We can have this hall tomorrow, or you can have the hall at the armory.

Gentlemen, you understand that the election of officers is under the direction of the executive committee or board of directors. I would appoint of these directors, to take charge of the election tomorrow. Messrs. Raven, Frary and Webb.

As a committee on resolutions I will appoint: Messrs. Bechtel, Eldridge and Claud Grove.

I presume nominations for your officers, president, vice-president, secretary and treasurer and five directors, will be in order at this time, therefore, we would like to have nominations for president. You understand the procedure is to make the nominations this morning, and the

balloting will be done tomorrow morning from 9 until 11:30 o'clock. Nominations are in order.

Mr. Raven: I would like to make an announcement. In our new constitution and by-laws, adopted two years ago, the order of business for this morning is appointment of committees, nominations of officers, and therefore our nominations must take place, whether we desire to nominate at this time or not. I want to impress upon you this fact, that tomorrow morning, from nine until 11:30 o'clock, in a corner of the booth by the secretary will be the ballot box, and every member is supposed to cast his ballot for whom he wishes as officers of this association for the ensuing year. We vote on the Australian ballot system the same as is done in the state elections. This came through having a nominating committee a few years ago, which made the nominations, and there was scarcely any time for anyone to oppose the nominations made by the committee, but there did come a time when there was opposition.

Mr. Eldridge: I presume the first in order is nomination for president.

Mr. Raven: I wish to place in nomination our present incumbent, Mr. T. F. Marston of Bay City.

Mr. Bechtel: I support that nomination.

The Chairman: Are there any other nominations for president? Speak rapidly, Gentlemen, we want to keep the meeting moving.

If there are no other nominations for president, we will call for nominations for vice-president.

Mr. Bechtel: I place in nomination our present vice-president from the northern part of Michigan; a great big good natured fellow, Mr. Vanderboom.

Mr. Raven: I support that nomination.

The Chairman: Are there any other nominations for vice-president? If there are no other nominations for vice-president, we will proceed to nominations for secretary-treasurer.

Member: Inasmuch as we had a change of secretary last year and our present secretary, Mr. Powers, has only had it one year and not had time to show us entirely what he can do, I would nominate Mr. E. S. Powers to succeed himself.

Mr. Raven: I am very glad indeed to support the nomination of Mr. Powers for secretary.

The Chairman: I think the gentleman in the rear of the hall is a little mistaken about Mr. Powers not having had no opportunity to show us what he can do. It seems to me he has shown us he can do some pretty good things at this meeting.

Member: To put a little spirit into the fight I would suggest the name of George H. Brownell of Detroit.

Nomination supported.

The Chairman: Are there any other nominations?

President Marston: I wish to explain at this time to the association that under the present way of running the association the directors have a great deal more work than ever before. In the past a great deal of work has been left to the secretary but this year the directors have done unusually well and if there is any success to this meeting it is largely due to the directors of the association. They are no longer

figureheads, they are real workers and have assisted in making this meeting a success.

Mr. Bechtel: I would nominate for chairman of the board of directors Mr. Raven.

Mr. Raven: Mr. Chairman, I have been on the board of directors for about seventeen years. I have served my time and I positively decline to act on the board of directors or hold any office this year, although the association can have my work just the same. I am working for the state and it requires too much of my time, and I would rather hold my job in the state where I get paid. Out of the twenty-seven years of this association I have been a member twenty-four years and have attended twenty-three meetings, so I think I have been here long enough. If you will allow me to substitute for that place, Mr. Chairman, I will nominate Mr. Bechtel as chairman of the board of directors.

The Chairman: Are there any other nominations for chairman of the board of directors? If not we will proceed to nominate the other directors. Who will you have for your others directors?

The following gentlemen were then nominated and nominations supported: Messrs. Albion L. Wright, Bad Axe; B. F. Frary, Lapeer; C. R. Webb, Chesening; Claude Grove, Litchfield; Henry Rozema, Fremont; N. J. Whitney, Kalamazoo; Fred Eldredge, John Boyland, Grand Rapids.

Mr. Eldredge: Gentlemen, I feel it would hardly be fair to place my name in nomination at this time. After the loyal support I received from the Michigan Buttermakers last year in Chicago, I cannot ask anything more from their hands and I wish you would omit my name from that list, Mr. Raven.

The Chairman: Gentlemen and Buttermakers, I wish to express the appreciation of the officers of the Michigan Dairyman's Association at seeing so many of you present this morning, and I believe your committee has prepared a program this morning that will be well worth your attention. I am sure you will derive more benefit from hearing the other speakers than from listening to me, and we will therefore take up the regular program. As Mr. White and Mr. Burroughs are not present this morning, there is only one thing I can see that we can do with this program and I am pretty sure it will meet your approval, that is stand the thing on its head, so I will introduce to you Mr. S. B. Shilling of Chicago, who will talk to you on organization. Possibly some of the other speakers will have arrived before he closes.

ORGANIZATION.

MR. S. B. SHILLING, CHICAGO, ILL.

Mr. Chairman, Ladies and Gentlemen: It is hardly fair to call me out as the first speaker and then call on me so soon again, as I have made my speech and have touched upon that part of the question relating to your organization. I did it with the idea that I would not say anything more on the subject, because that I think is the main thing with you, and I wish to compliment you upon the stand that you have taken, the advanced position, in regard to this matter.

You are aware of this fact, that the day and age of individuals accomplishing anything has passed. That is one of the impossibilities under our present system of business; it is absolutely impossible for an individual to accomplish anything any longer and obtain results. It has come to this, that we must make a combined and general effort as an organization in order to accomplish anything, and I think your body agrees with me in this, but when I stood before you and said these things to you, it was with the idea that I would not talk to you again at this meeting, but owing to another fact I am glad to have the privilege of standing before you to add something to my previous remarks.

You are aware that you have had an organization back of you for a number of years, the National Dairy Union, and I do not know whether you realize the benefits of that organization to you or not, but I have stood before you on previous occasions and told you of the benefits of the organization and what it has done for you and therefore I do not feel like taking up your valuable time to discuss that; but I want to say, by way of explanation, that Mr. E. K. Slater, present secretary of the organization was here to address you yesterday, but he came here sick in the morning, was obliged to go to bed and remain there all day and leave for home last night, unable to say a word, and he requested me, if I had an opportunity to talk about the work of the organization and urge your support the same as I did when I was president of the association.

It is needless for me to tell you what the Union expects to accomplish, what it has accomplished. I want to say to you that you have the honor of representing an industry that is protected by a special law, enacted for a special purpose, and it is the only industry I know of so protected. You are also aware that the oleomargarine product has reached nearly one hundred and twenty-seven million pounds, and immediately after the passage of our oleomargarine law it shrunk to less than fifty million pounds. You understand what that means to the dairy industry and, as I said to you before, I want to say again, that the materials out of which oleomargarine is made are unlimited, the capacity of manufacture is unlimited, and the cost of it is so much lower than is the cost of dairy products, that if there was nothing to compel the sale of that product for what it is it would put everyone of us dairy-men out of business in a short time.

The National Dairy Union is worthy of the best support you can

give it today the same as in the past. We have had to enlarge our field by doing this,—while I was president of the association for eight years there were but three years in which I drew any salary at all, and the other five years I gave my time; but the work became so arduous it was necessary for me to give it up or devote my entire time to it. We re-organized in Milwaukee a year ago and concluded that it was absolutely necessary for us to have a man at the head of the organization who would give his entire time to the work, and so the board of directors hired Mr. Slater to do this, and Mr. Slater spends his entire time in the work that was formerly looked after by me.

I want to say to you again the National Dairy Union is worthy the best support you can give. Undoubtedly a great many of you have seen articles in the magazines concerning oleomargarine, you see column after column published in different magazines, and while I supposed at one time that they were news articles I afterwards learned that they were articles paid for by the oleomargarine interests. We had supposed that with Mr. Slater we would be able to get the same kind of publicity and you may imagine our surprise when we found that such papers as the Saturday Evening Post, Munseys, and such magazines were running paid articles, paid for by the organization of oleomargarine manufacturers, and it was necessary for us to do something along that same line to counteract that, so we have been endeavoring in the last year particularly to educate the consuming public. The principal thing we are up against today in this fight is that the consuming public is so greatly misled. The cry is the consuming public is to be benefited, while the fact is the people have been made dupes of from the beginning. During the last winter, when butter was retailing at from 45 cents to 50 cents a pound, oleomargarine when colored went up to within two cents of the price of butter, while if it was compelled to be sold for what it is the consuming public, the laboring man if you please, could have bought it for fifteen or twenty cents a pound. Because it was allowed to be colored to resemble our product and forced on the people as the genuine article, the consuming public has not been benefited.

I do not want to give a false impression in regard to our position on this question. We are big enough and broad enough to say this and we believe it is right, the oleomargarine manufacturers have just as much right to manufacture and sell their product as we have to manufacture and sell butter; they are as much entitled to protection under the law as we are in the manufacture of butter, and the man who consumes oleomargarine is entitled to as much respect as the man who consumes butter, but all we ask today is that some kind of an enactment be made to compel the sale of that product for what it is.

Now while I am before you I will take advantage of the privilege, and I do not know but I may be wrong in doing this. Many of you last night heard the lady give the address and her remarks on the reciprocity treaty between Canada and this country. You have undoubtedly heard what Champ Clark said about the tariff law. He said it reminded him of a horsethief out west that was hung, and when the boys had strung him up and shot him full of bullet holes they went away, but they left a placard on his body which read like this "This man in some respects was a mighty mean man and a damn sight meaner in others." Now while I stand before you I may be talking to people that do not agree

with me, but I want you to dispel your minds entirely, for just a moment, of any political issue; I want you for a few minutes to get it out of your minds that you are either a democrat or a republican, I want you to think you are a farmer and engaged in the product of agricultural products from the soil and that your interests are either to be bettered or threatened. If you do that and do it honestly and then examine closely the situation, if you take the pending reciprocity bill before Congress at the present time and read it from beginning to end, if you will take the letter of transmittal from President Taft, and the speeches he made through the country, and then go back to the year '85 when a like law was passed and read thoughts on the subject at that time, if you dairymen, if you farmers who are engaged in the tilling of the soil will do that you will think only one thing and that is that it is an injury to you dairymen; that it is one of the worst things that ever has been tried to deceive an innocent and unsuspecting people. Just take this one thing; is it fair for you as producers to have your products upon the free list, and then have a tariff on everything that you buy in a manufactured condition? Is it right, is it just; is it right for your butter, your eggs and your poultry to be on a free list while your wagon on which you haul your goods to the market has a 22½% tariff on it? Is it right that the reaper and mower that you harvest your grain with have a tariff on them of 15% or 20% and at the same time the grain they cut be on the free list? Is it right for the products of our farm in the shape of stock, in the shape of cattle, in the shape of meats of all kinds be admitted free to other countries and then a tariff of 1¼ cents be placed on it in the interests of the packing houses. These are questions to take home with you. I want to say to you that if they will give us absolutely free trade I will not raise a word of objection. While I do not like to urge this upon you, I do wish that before this body adjourns, if it is your opinion that that kind of resolution should be passed, that you will pass it. I have been talking politics but to me it is a situation that warrants the best of our attention and I hope you will see it as I do. I may be mistaken in this matter but I have never felt any more worked up over a public question than I do over the present reciprocity treaty, because there are certain things in it that I would like to have any man explain to this audience or any other. I would like to have someone explain to me why wagons were only lowered 2½% while everything else was lowered 5 and 10%? Why was the duty on wagons only lowered from 25% to 22½% at this time? I cannot understand why the only implement on our farms that is absolutely free of duty is the hand separator. These are questions I cannot understand. Do you know it is true that we are practically throwing open the door of our markets to the pauper labor of Europe when we pass the reciprocity bill, and that there is not one provision in the bill that prevents the entire product of England going to Canada and from Canada being shipped to this country in the way of meat, pork, dairy products, eggs, or anything else?

Gentlemen, I thank you..

The Chairman: There is one thing that possibly we understand better than Mr. Shilling. He always seems afraid of wearing an audience of Michigan buttermakers by taking up too much of their time and the buttermakers are always worried for fear Mr. Shilling will leave off

before he gets through talking. As Mr. Burroughs, who is on the program for the next subject "Benefits of Co-operation among Creamerymen" is not present at this time, we will call on the versatile young man who was to discuss this subject, Mr. W. H. Bechtel of Caro. Mr. Bechtel has been active in the organization of the Creamery Manufacturers' Association; I think he and I drew up the by-laws. He knows all about this subject and I presume he can thresh it out quite satisfactorily, then we will have a testimony meeting among the buttermakers and let them thresh Mr. Bechtel.

ADDRESS.

Mr. Chairman, Ladies and Gentlemen, Fellow Buttermakers: You noticed what the chairman said about threshing Bechtel; that shows that they wait until they cannot get anybody else and then they take and thresh Bechtel, so I am here to be threshed. As the superintendent of the sugar factory in Caro, (an old German) said, "Who does this, and who does that, I am the whole ting," but I did not suppose on this topic I was going to be the "whole ting," I simply thought I was to corroborate or find fault with what Mr. Burroughs said. However, this subject of co-operation among creameries is one that I have been studying for the last two years, a subject that has been on my mind, and last July when I received a letter from some of the boys saying that the creamery men of Michigan wanted to get together and organize I was much pleased. I felt that the very first meeting paid me, as a manager of a creamery, and paid my company for all the expense I have been to up to the present time.

As Mr. Shilling said, I feel that one individual cannot accomplish very much, because the fellow working right beside me may be against me, and I feel that we as creamery men and dairy men must get together, we must have a system, we must have an understanding as honest men, that is one of the main things is honesty. If you agree to something with your neighbor stick to it, do not tell him that you will do one thing and then turn around and do something contrary, but stand by your agreements. I had a little experience this year with one of my neighboring men. We had agreed to do a certain thing but circumstances arose which made it seem necessary for me to consult with him, so I called him up by phone and he told me what he would do, but I am sorry to say he did not do it. Do not promise to do anything you will not do. Before you make promises think the matter over and if it seems right to you promise to what is asked and then stand by your promise, but if you think the man who is asking you to make this agreement is wrong tell him so frankly. I think a good many of you know that my fault is that I speak too freely, but I feel that we should be frank with each other and with our competitors, if we call our neighboring creamerymen such.

Now we have this proposition to face with, and I believe Mr. Shilling hit the nail on the head when he said we must buy the raw material for what it is worth. We have been paying altogether too much for it, we have been putting a premium on poor cream all over the country; this is not only true in Michigan but in other states the creamerymen have been doing the same thing, they have been placing a premium on

rotten cream and the centralizers are at the bottom of this in the first place. While I have some warm friends among the centralizers, as a whole I do not think much of them; they have always been an enemy to quality. They have come into my territory and said to my patrons, "It does not make any difference what you send me, I will pay the price," and I have come to the conclusion that they can have what I do not want. I will pay for a first class article and they can have the rest, and if they do not want it the farmer can keep it; if my neighbor wants that poor cream he is welcome to it, I cannot see any money in it. I believe it would be a splendid thing if we could all get together, the dairy farmers, creamery men and all, and have something understood, instead of each of us trying to stir up trouble with our competitors. For instance, my neighbor is paying all he can legitimately pay for the product he is getting but I see a chance to go in there and stir up a little trouble, so I will go there and pay a quarter of a cent more than he is paying. What am I going to get? I will get no good substantial patrons, but I will get a few poor ones and I have made myself a lot of trouble and made my neighbor a lot of trouble. I believe the creamery men and creamery managers have been doing this all over Michigan. I know I have three plants and I find conditions the same in all three places, that is I stir up my neighbors' patrons and they stir up mine and we have trouble all the time, but if we get together and agree on a certain price and a certain territory, say "I will not go down a certain street, I will pay a certain price for butterfat that I will grade as No. 1, I am going to consider No. 1 cream as so and so, what will you do?" and then live up to our agreement, we will very materially improve our conditions; but we must be honest with our competitors, we must be honest with ourselves. I do not believe some of us have any respect for the methods we are using ourselves.

Mr. Shilling: Is there a way by which you can tell the difference in cream? Is there an honest acid test?

Mr. Bechtel: That is the trouble. I had a little experience along that line recently. I had a patron that sent in three 10-gallon cans of cream and we had been having trouble with the flavor of the cream from that particular dairy. For about two months we had been having this trouble and we had been doing everything possible to locate the trouble. The cream came to us apparently as sweet as when the milk was drawn from the cow, did not show any acidity to amount to anything, and yet we had a bad flavor there. Two weeks ago it came in in nice condition, the next day it came in in fairly good condition. Last Friday my operator took the cream in and passed it. I happened to come in to the creamery at that time and he said, "I wish you would look at Mr. Blank's cream today." I looked at it and found the first can was good, it was the cream from the night before and from the morning's milk. I passed on to the next can and I said "Do you call this fair?" "Why yes, pretty good." I said "It is what I would call rotten." I stirred it up and said "smell of it." He smelled of it and said "I think you are right." That is the proposition we are up against, cream that one man would pass and call all right the next man would reject, so all I can figure out in my mind is that each individual must grade his own cream. I cannot devise or suggest any method whereby we can have some rule to grade and test by. Some people say "I will

pay so much for sweet cream" but I would rather have some sour cream than sweet cream with the flavor of those cans I examined. I would rather have sour cream with good flavor because it will make good butter.

Mr. Shilling: Is it not dangerous to leave it in the hands of the farmer to sour?

Mr. Bechtel: Yes it is dangerous to leave it, but if I were going to pay two cents more for sweet cream than for sour cream, I would really prefer to have cream that is a little sour yet is nice and clean, rather than cream that is sweet but has a bad flavor, so I do not believe we can say we will pay a certain price for all sweet cream and another certain price for sour cream, so the question in my mind is how can we grade cream, and I believe at the present time it is up to the men that do the grading. We will have to have the men who do the testing not use tobacco and such things, so their sense of taste and smell will be keen. I lay my success as a buttermaker to the fact that I have never used tobacco, or anything of that kind, and have a keen sense of taste and smell, and when I made butter myself I always thought I made a fair grade of butter, and I always said I made my butter with my nose. I believe we must all make it to a certain extent with our noses, and must grade cream that way.

Member: Did I understand you to say the second can of cream you inspected was sour, or was it sweet?

Mr. Bechtel: It was perfectly sweet.

Member: Did you find any reason for that bad flavor?

Mr. Bechtel: We have been trying for two months to find the cause of those bad flavors, and finally asked the dairy and food department to send me a man.

Member: Do you know anything about where the bad flavors came from?

Mr. Bechtel: That farmer has one of the finest barns in Michigan, is feeding hay and ensilage.

Member: Do they feed before or after milking?

Mr. Bechtel: They feed the ensilage in the morning after milking and in the afternoon at 3. I have suggested to them that they feed the ensilage after milking in the evening.

Member: Have they a hand separator?

Mr. Bechtel: Oh yes. They wash their separators and I have never found any dirty or bad odors in the milk utensils. The cans are washed before they are returned and are also washed when they get back to the farm.

Member: Do you have any fishy flavor?

Mr. Bechtel: No we are too far from the Bay.

Member: Do you have two ripeners?

Mr. Bechtel: No, we have two churns. One is a small churn and when we have a bad can of cream we churn it separately and sell the butter for what we can get for it.

Mr. Miller, Ind.: I wonder if Mr. Bechtel is sure there is not something about the premises that contaminates the air where the cream is placed, because the first two cans were contaminated while the last one had not been there long enough to be injured. I do not remember whether it was Mr. Shilling or a gentleman from your state who told

me recently of a similar case of cream being contaminated, and they finally found part of a dead carcass in the grass a short distance from where the cream had been placed over night until it was gathered, so that a foul odor got into the cream. This carcass was carried, so they supposed, by a dog. Might there not be something like that in the case cited by Mr. Bechtel?

At one time we were receiving milk from a certain place where they only had four cows, and the milk was so bad that when the cream from that milk was in one three-hundred gallon vat, and there was another vat with the other cream in it, when it was all set with the starter and I came down to the creamery in the evening I could detect that flavor. I had this farmer bring samples from each cow separately and I found it was the milk from just one cow that caused all the trouble and I decided the cow had tuberculosis, although she looked sleek and nice. I sent a sample of that cow's milk to the state department in Indiana and on the analyses it was found to be full of germs. We disposed of the cow and had no more trouble with that flavor in the milk.

Member: I believe the last speaker is right. We have a veterinary in our town and I have talked with him and asked him to pay particular attention to a certain herd of five or six cows. Of course he only had his judgment to go by but he told me he thought the same thing was happening right there in that dairy that this gentleman was speaking about, and I know the owners of this herd are good clean people and trying to produce the best possible article.

Mr. Bechtel: I took pains to look this herd over and every cow in the herd seems to be in good condition, seems to be normal in every way, but there is certainly something wrong somewhere. The barn in which this milk is produced, has cement floors, running water, and is fine in every particular.

The chairman: Just one moment, I am sure you will pardon this divergence, but there is something I think will interest you and therefore I ask your indulgence at this time. I notice Mr. Martin Seidel came into the room a few moments ago and I will ask him to tell us about the creamery managers and owners meeting and the subjects that will be discussed there.

Mr. Seidel, Secretary Creamery Managers & Owners Ass'n.: Our meeting will be held in one of the halls adjacent to the machinery hall. The subjects will be taken up, when the business program is completed, which will not take over ten minutes time. At our last meeting the question of grading cream and of loaning cans to the patrons was discussed to a certain extent, and it was decided to appoint two committees, one for each subject. Those committees were to meet and in a way outline plans which can be followed in these two things, that is in grading cream and loaning cans. The report of those two committees will make up our program this afternoon. It will take all the time we have because they are live subjects and require considerable discussion.

The Chairman: Mr. Bechtel said the centralizers were pretty much in the same habit of taking any kind of cream which came to them, which is probably more or less true, but there is one thing the Michigan creamery men can realize as well as I do, and that is that the centralizers have not been lying on any softer bed for the last year than we have, their butter has not sold any better than ours has; they have

not hired better buttermakers than the local creamery men, and I am in receipt of a communication from one of the largest centralizers in Michigan saying that the first day of April his company will commence to grade cream at every station they have, they are now putting out weekly bulletins to their farmers trying to get them educated to this point where they can begin to grade. This same centralizer has sent out bulletins to the farmers announcing the discontinuance of the loaning of cans, that big nuisance that we had at one time. That centralizer is a member of the Michigan Creamery Managers and Owners Association. I know one of the largest local creameries in the state of Michigan that will begin grading the first of April, and I believe this is a live topic and will be well threshed out. We cannot talk about this any too much because it is an emergency and we must be ready to meet it.

I would like to hear from some of the gentlemen as to their opinion.

Mr. Seidel: I would like to extend an invitation to each and every one of you that has anything to do with the management of a creamery to attend this meeting, whether you intend to become a member of the association or not. Come and know what we are doing, let us show you, and nine chances out of ten you will work with us. Do not forget the time, try and attend.

The Chairman: I want to say, in giving prominence to the Michigan Owners and Creamery Managers Association, that this association is in no way antagonistic to the Michigan Dairymen's Association, but aims to work in conjunction and harmony with it. There is no idea of splitting the Michigan Dairyman's Association up, but rather of broadening its scope.

Mr. Miller: Mr. Bechtel brought out the discussion along the line that I would very much like to hear discussed, that is grading and handling this cream on a business basis, but unfortunately this discussion has been somewhat along individual lines, which we creamery men all have to meet with. We all have to meet these little obstacles as individual creamery men and with the state's help we can work those things out for ourselves, but I would like to have this discussion carried out on different lines, of how we are going to grade the cream, how it can be done. During the month of January I had a station start up on both sides of me, where they tested cream in any place at all where the temperature was the same as the temperature out of doors, sometimes tested with only lukewarm water and the cream came up to the bottle like a piece of lager. I have been the business for a number of years but I do not feel that I am competent yet to grade cream and I would like to have this discussion cover a greater subject than individual cases that we all meet.

Mr. Bechtel: Perhaps it does look as if I were talking too much about individual cases but I had been working on that patron to get him to send in a good quality, and I want to say to you it was lucky that a centralizer did not come into the territory at that time because he would have said to that patron "It is all right." That is why I have always been opposed to the centralizers because they would do those things. After I have gone to the trouble of instructing my patrons to produce nice cream, Mr. Centralizer will come along and of course he likes that cream and when he says what he does about quality, what are we going

to do? At the present time, if a man can pay a cent more for cream than I can he can have that cream.

Member: I would like to ask Mr. Bechtel if he is pasteurizing that small amount of cream that is bad flavor?

Mr. Bechtel: I have not only pasteurized it but I have boiled it and when it is heated you can smell it in the whole room.

Mr. Vanderboom: While we are upon the subject of flavor, I would like to ask one question whether they have ever investigated close enough to see whether cottonseed meal would influence that flavor or not? I have had the same trouble several times in the dairy business and I am surprised more of the consumers do not complain of the flavor. A man the other day said, "I do not know whether it is a taste or a smell." A lady said the other day, "I will tell you, it smells like a sick child's breath," and from what I can gather from what has been said you are having the same flavor here. One man said it was because we were feeding rye hay but we are feeding clover hay now and are having the same trouble every once in a while. The question has come to my mind recently whether it may not be something in the cottonseed meal. I am not prepared to say whether it is in the cottonseed meal or in the individual cow. If anybody here has tested out the cottonseed meal I would like to know it.

Mr. Bechtel: My patron does not use cotton seed meal.

Mr. Webb: You could pick out that milk by having a herd test and if it was a particular cow that was causing the trouble discard that cow and see if you still had those flavors. There has been a good deal said at different times about the difference in the test between the hand testers in the station and the steam testers in the creameries. When the hand separators are not being properly handled in the station, so as to get a correct reading, it would be a good idea for the farmers to watch the people who are making the test and see that it is done properly. I happened to be up north in the early part of the winter and saw a man testing cream for one of our large creameries. He had just started in the station and did not have any hot water. There were a dozen of farmers there and he took a little tin cup and put it into a pail of water, at the same temperature as it came from the well, and ran it into the cream. I said "Do you use cold water?" He said "Yes, it does not make any difference whether you use cold water or hot water."

Member: I saw that same thing done; a man was operating a hand tester and using cold water. The fat come up there in the neck of the bottle and it looked like tallow and he could not tell whether it tested 25% or 30%, and he paid on the latter basis. The farmer was satisfied because he said he knew he was getting paid for more than he gave.

The Chairman: We have a law in Michigan, with a penalty attached to it, against tampering with a farmer's test in any way, but there is one thing wrong with that law and the Michigan Dairyman's Association should take it up and have it fixed. For instance if we test out a can of cream in the presence of forty or fifty witnesses, take it to a different creamery and the operator there cuts the test ten points, we have no evidence against him. We have to have an inspector down there and that inspector must take a sample of that cream, carefully seal it up; then he must get into the farmer's wagon and ride with him to see

that nobody tampers with that can of cream, and then he must see that Mr. Centralizer, or Mr. Boosting-test creamery man takes out that sample and tests it, and then we may have a case against him. Now that law is not right. For instance a creamery, not more than a thousand miles from here, a short time ago suspected that a centralizing creamery was boosting tests on him so he sent for an inspector. The inspector happened to be a friend of the centralizers and the first thing he did was to go down and talk it over with the centralizer, and Mr. Creamery-man lost three or four cans of cream that day by sending them to the centralizer and the cream tested the same. I do not believe in this juggling the tests up or down, and I believe this law is like a conviction under the liquor law at the present time, it is almost impossible to get. Lets get that law fixed so we can get evidence in different ways that will be acceptable in the courts of Michigan.

Member: One way is to make those fellows that run stations take out a state license and then see that the dairy department makes their examination good and stiff.

Mr. Webb: And when we catch a man juggling in any way take his license away from him, the same as from a saloonkeeper.

Member: In regard to this cream station business that Mr. Bechtel was talking about, I am running two cream stations myself. I test all cream by the hand tester and weigh every sample by the scales, and there is not once in twenty-five times these fellows are ahead on butter-fat. We have three creameries in our town; one of those creameries does its testing with the hand separator, and it does not make any difference where the cream is taken to, the test is the same whether tested by the hand tester or by the steam tester.

Mr. Bechtel: Here in another thing that came up between Brother Phillips and me. A man came to my plant with a can of cream and he had a can of cream from his neighbor for Mr. Phillips. He brought the can there and my man tested it and it read 23. At first my man refused to test it. He said "If it is Mr. Phillip's can of cream I do not want to do anything with it. Those are my orders," but the patron insisted so strongly that he consented to test it, and after the man was gone he tested the sample again to see that he was correct, and there was a difference of three points between Mr. Phillips' test and his. We are in the same town receiving cream, Mr. Phillips has a receiving station and I have a creamery, and we try to be fair with each other. From his book it showed that his man had not read anything above what it should be and yet my man was very firm in his belief that he was correct. The question is it in the scales. We have compared scales and weights and everything.

Mr. Lumley: The state has had inspectors out inspecting the creameries, in fact I have one every little while at the creamery, and I have thought that during the past year or two the state was paying too much attention to the creameries that had competent men over them, and perhaps the inspectors would do more efficient work if they looked more to the small weighing stations, to the farmers or the stock keepers, and the hardware merchant that is taking in the cream at the station. I believe if the inspectors would go to those places more and to the large creameries less, there would be more efficient work done.

Mr. Bechtel: I do not see how. Where a merchant is taking in

cream he wants to be a good fellow to his customers and give them all he can. The only way I can see is to have a receiving station along the line and regular hours the operator would be there buying, because I think you will find that man depending on the public for his business will be a little inclined to favor the public. That is the question that comes to my mind on this grading question, I do not know how the centralizer is going to get the merchant to grade cream. It is just as a merchant in our town said the other day. There is a lady that brings butter to his store and he pays her as much for it as the finest butter he receives, but he says it is not fit for a dog to eat, but he takes it just the same and pays her the top price for it.

Member: We are getting away from this grading of cream. I have been waiting for Mr. Bechtel to lay down some foundation so that the buttermakers will have an opportunity to know what to select and what to reject, and the percentage of acid that cream should really contain in order to make good butter. We all know what ought to make good butter and what will make good butter if we can get it, but some flavors will exist in cream that we cannot find out and nobody can unless he be a chemist, but I am going to grade our cream the first of next month and want to know just how to handle my patrons and not offend them so that they will stay by me. We all have competitors. I have a competitor but he is a manly good fellow and we get along all right. We do want to get together to grade this cream and select cream so we can make a good piece of butter and get an extra price for it. What is a grade of cream that will make good butter and leave a percentage to work on? I hardly know how to get at it myself. The other day I had eight cans of cream. I smelled every one of them and I said to myself "I do not know how I will grade that cream." I picked out one or two cans that were quite sweet, one of two quite acid but not enough to injure the quality, and I thought the next I picked out, containing $4\frac{1}{2}\%$ acid, was the best cream in the lot. There were two more cans that I churned and the butter was so poor it would have spoiled the whole lot. If you do this you will educate yourselves. If you are careful in grading the cream you will soon educate yourself so you can select the good cream from the poor. Many buttermakers well qualified in every respect find it hard to go to work and grade a lot of cream from three hundred to four hundred patrons and have them all satisfied and have everything run smoothly, and yet not grade the cream at a loss. If a man throws a fairly good can of cream into a vat of poor cream then he will suffer a big loss. A buttermaker has to have a good sense of smell and taste in order to be a good judge of cream and if you are careful you can grade cream all right. You must, however, have some foundation or method and I believe Mr. Bechtel is able to explain that matter and give the boys some idea as to the per cent of acidity the cream should contain and the looks of the cream. A man can tell by the appearance of the cream when he puts an agitator into it whether it is going to make good butter or not.

Member: This discussion this morning has been quite interesting but I am afraid we are not getting to the bottom of it. Until you get a better law in the state of Michigan, which compels every man to be honest, you cannot do anything. I am quite positive of that because we have too many people in this country, and perhaps in the old country

as well who are not honest in the business and we have no way of catching them. I am not very much interested in the cream grading system because it does not make any difference to me whether we have the hand separators or not, but I honestly believe, (and I know there is not a man in the house that will agree with me), that five or ten years from now we will be talking about whole milk more than we are now talking about the hand separator cream. The hand separator is only an instrument to get the people of this country into the dairy business. The old country has been through some experiences that you people are now undergoing. The hand separator system is only an inducement to get people into the dairy business, and when they are dairymen they will not want centralizers because the market today shows you the people will not pay the price for the kind of goods we are producing; they want the A-1 butter and you get it through the whole milk system because the centralizers are getting cream so far from where it is made into butter. We should go to the legislature and ask it to pass a law prohibiting a man from operating a Babcock tester in a receiving station without a license, and that will stop a lot of this "monkey" business that we now have, and have your laws fixed so when a dairy inspector comes around and sees things are not right and that one man is testing three or four points too low he can prosecute that man right there.

Member: We have been talking a great deal about grading the cream but there has been nothing said about the old rusty cans we have to contend with.

The Chairman: The state dairy and food department are making a fight on that now.

Mr. Davis Haven: It seems to me the creamery men are between the devil and the blue sea when it comes to the question of grading. In 1890 there was one cow to each 10.4 persons; in 1910 there was one cow to 25.1 persons, so the population has been increasing faster than the cows and we are getting to put more restrictions on the milk producers. This cream grading question is a question of the utmost importance and I do not believe that the man lives that has solved the problem. I do not believe it. In the state of Minnesota a few years ago the dairy and food department promulgated a system of rules for grading cream and, as I remember it, that system was to pay a definite price for cream that tested not less than 25% and was sweet, a cream practically sweet or slightly sour and testing below 25% should be paid for at one cent less; any that was sour and tested below 20% should be two cents less, etc. Every farmer knows his cream is good the same as every housewife knows her butter is good, and if you will not take it the other fellow will. The whole system of buttermaking for the last fifteen years has been one of quantity rather than one of quality, and until some system can be brought to bear to encourage the farmer to milk more cows, it seems to me it is almost a hopeless task. I do not believe we can grade creameries successfully and retain a farmer's business if we are going to discount for quality. I think we have to establish a price to be paid for the cream and then pay a premium for better quality rather than discount for poorer. It is a very hard proposition. I do not know how to get at it, I have studied it and I have a letter this morning stating that butter in the city of New York, seconds was paid nine cents below the grade of specials the last of the week, because there was so

much under grade butter, and how are we going to get rid of it? I do not know. There are so many problems to be taken into consideration that it is very difficult to decide what to do. I believe that Canada has solved the cream business better than the United States. In Denmark if a creamery wants the government to look after the sale of its butter it must come up to certain requirements, a representative of the government is allowed to reject the butter at any time, but if a state inspector comes to a factory today and rejects poor cream all right but that same cream comes back in two days and the buttermaker has not backbone enough to turn it down. We have to get more backbone into the buttermakers before they will ever grade cream, but only the buttermaker but the centralizer. The centralizer does not want bad cream any more than does the local creamery but they take it and they are in trouble. In my letter this morning I was told of a Michigan creamery that sent butter to New York and received returns at 21 cents a pound, an actual loss. It is a serious problem and I wish I knew how to tell you how to overcome this difficulty because I believe my fortune would be made if I did.

Mr. Vanderboom: I believe the dairymen could help the buttermakers some if they get the business beyond the danger line. They talk about the cream after it gets to the creamery but I believe they have to start with the farmer, with the barn, with the cows, and begin to educate the farmer and the farmer's wife. Get them to use sanitary pails and clean cans, and I believe they will get at the bottom of this butter business and get a finer article than to spend our time talking about the cream when it comes to the creamery. Start at the bottom, see about the cows, see that they are right, that the barns are somewhere near right, have lots of sunlight about the barn, plenty of good water and wholesome food, use sanitary pails, clean rags and strainers and I will guarantee there will come no poor cream to the creamery.

Mr. Miller, Ind.: I should not take any more time but the subject is so interesting the spirit moves me, and I wonder if a creamery making some first class butter could not work up a special market for that butter? There is a market for butter of that kind. The market reports show that good butter is cleaned up every day in our markets, they have no trouble whatever selling it.

In regard to whole milk creameries, I cannot help but disagree with the gentleman who last spoke on that subject, and I feel that a great many of you disagree but are a little afraid that possibly it is dangerous ground on which to tread. We are running a gathered cream plant and I believe it is the thing, and if the men that runs a local gathered cream creamery only stands "pat" he is going to win out against all the centralizers and everything they can do, and to this gentleman that spoke about the troubles he had with two centralizers on opposite sides of him I say "stand pat" and show your patrons that you are honest and are going to do a straight business, and you will win out. I have done it and I defy any centralizer to drive me from the little spot on which I am located. They tried to do it last summer by boosting the tests and they did get some of my patrons. At one place they raised the test from 24% to 40%, and at that place I had been getting only part of the cream, but after that the patron said to me "Now you will get all the cream." The only thing is to show those people that you are

honest, then if you can work a special trade on a good grade of butter you can get a market for it, then grade cream on the plan suggested by Mr. Haven, and I believe you will win out.

Member: I appreciate what the gentlemen has just said but when he tells me he can win out over Swift and Armour I question it. If he is a small creamery man with not to exceed \$5,000, in a local territory that does not cover over five to six miles, and Swift or Armour comes there and pays a cent above extras and boosts the tests up from five to six points I would like to know how long he will stay in business. I do not think he will stay long.

Mr. Miller: I am holding the fort. The Blue Valley people have been after my route. The Beatrice people have unloaded a wagonload of cans at my front door, and I am happy to say they have all returned them.

Mr. Haven: Another matter is of great importance because Mr. Vanderboom spoke of the importance of education, and I think it is right, but you will never complete this course of education until you put the underlying principles of agriculture into our schools and build up a group of farmers, a coming generation of farmers, that will understand more of these problems that are confronting us today.

The Chairman: There are several little creameries in Michigan that have stood against Swift for quite a little time and they are still holding the fort, and I am of the opinion with the gentleman from Indiana that they can.

Mr. Bechtel: I have the same buttermakers and Swift has changed buttermakers a number of times.

The Chairman: The Michigan buttermakers have a profession and, there is just one thing we do not like today. When we come to grade cream we do not like to put our professional reputation against that of the man at the corner grocery, or hardware store, or the receiving station, for if the man that is running the test is giving a dishonest test he will be dishonest about the grading, and the thing the Michigan buttermaker hates to do is to put his professional reputation against that sort of business. The sooner we get to the legislature and have the law changed the better off we will be.

I wish to announce that a banquet will be held this evening at the Wenonah Hotel, and a special program has been arranged at the Washington Theater. The entertainment at the Washington Theater begins at 8 o'clock and immediately after the close of the program we will go to the Wenonah Hotel for a banquet.

If there is no further business, we will stand adjourned until 1:30 o'clock this afternoon.

WEDNESDAY AFTERNOON SESSION.

Meeting called to order at 2 o'clock with Mr. W. H. Bechtel, of Caro, in the Chair.

The Chairman: It is long past the hour of coming to order so we will begin the program at once. The first on our program this afternoon is an address by Mr. H. Sondergaard, of Philadelphia, but as Mr. Sondergaard is a butter judge and busy at the present time, we will pass that and take up the next subject "The Future of the Gathered Cream Plant" by Mr. F. L. Eldridge, Breckenridge.

FUTURE OF THE GATHERED CREAM PLANTS.

MR. FRED C. ELDRIDGE, BRECKENRIDGE.

Mr. Chairman, Ladies and Gentlemen: I have not attempted to prepare a very long paper, in fact I have tried to say some things that might possibly bring out discussion rather than to say all the things myself, and I will be glad to have you go ahead and tear this paper to pieces, as may suit your individual needs.

I do not intend to pose as a prophet for the future of the gathered cream plants so any views that I may advance should be taken as those of an humble country creameryman and are submitted rather for your criticism and discussion than as an authority on the subject.

I believe that if the gathered cream plants are to have a future that is worth going on record that it will be necessary for about 90% of them to improve the quality of their product, or lower the buying price on the raw material to a point where they can make the manufacture of an inferior product pay and when they do the latter they are in trouble with the producer as well as helping to further demoralize the markets; so it would seem that there is only one remedy and that is to improve the quality of our butter.

Now how are we going to do this? Ninety per cent of the defects in the butter on the market are not of workmanship. It would then seem that if the fault is not of the buttermaker it must be of his material.

You gathered cream men well remember that it was not very long ago that we put in that expensive makeshift to improve a poor raw material, the pasteurizer, you know that we are practically all using starters now and that we have improved our methods of manufacture in a hundred ways but all of these things have not given us a better grade of butter; on the contrary it has grown poorer every year.

Last year our receivers at last seemed to have resolved to buy on a strict quality basis and it seems that the time has come when we have got to do about the same thing if we are to stay in business and make any money.

Some of our producers seem to think that they can deliver their cream once in ten days or two weeks in winter and once in five days or a week in summer, wash their separator when it is convenient, run warm cream right in with cold, handle it in the stable or any other place and still have Mr. Creameryman ready to meet them with a sweet smile and hand out New York extra or Elgin market for this grade of cream. Some fine morning he is going to do just what we are doing now. He is going to wake up and find that there is no market for such stuff and if he wants to sell it he will have to churn it himself and dispose of it at the corner grocery to finally find its way into the packing stock barrel where it will later become ——; well I will leave that to your imagination.

Some one will say that I have drawn an extreme picture. This I will admit. This kind of patron is not the average but practically every creamery in the state has a few of them and it is up to us to get busy and weed them out. Let us not tell him his cream is second grade; let us leave it alone. We owe it to the consuming public not to put such material into our butter.

I believe that in order to improve all of our raw material there are two important things to be done.

First. Commence and systematically educate our patrons to the necessity of giving us a better grade of cream. Talk with them and explain to them frankly that it is to their interest as well as ours, send them circular letters, drum them through the local papers in fact drill it into them in any way you can and lastly if you have any that you cannot reform turn them over to your competitor.

Second. Maintain a stiff upper lip and refuse to buy this spoiled and rotten stuff. It is a certainty that the creamery that gains such a patron by his competitor refusing to buy this grade of cream has taken on a liability rather than an asset.

Just now we are hearing a lot of talk about grading the cream. Some say two grades, some three and some even more. With some plants I can understand how this might work out quite nicely, but how about the very small plants who are only making, say three small churnings per week during the winter season? They can hardly churn it all together and improve very much and yet they have not enough to churn separately. With them it seems to me there is only one path to travel and that is to refuse to have anything to do with spoiled cream. If we are to grade, and I wish to place myself on record as heartily favoring it where conditions will admit, let us make the prices far enough apart to discourage production of second grade cream and let there be only two grades of it. The more grades we make the more we confuse the farmer and everybody else. As a matter of fact there is no reason why we should be obliged to have an undergrade at all. Certainly it is not the creameryman that is to blame because the farmer holds his cream until it spoils or because he does not properly care for it. Let us do all we can to educate him and help him along these lines and then make it a matter of dollars and cents for him to live up to the education we have given him.

With all of this agitation regarding the quality of the butter I believe now that the owners, managers and buttermakers are waking up to the necessity of improvement, to the need of making better butter than

they have ever made before and that there are enough clear-sighted business men among them to rise and meet this situation. I have no idea that the gathered cream plants are going to close up or go into bankruptcy on this account. I have too much confidence in the men who have charge of them to believe anything of this sort. Everywhere you go you find them making plans to meet this emergency, and I believe that the majority of you will agree with me that it is an emergency. It is going to be slow and difficult work to carry on this campaign of education and improve to a point that our receivers and the consuming public demand but we are going to do it and during the next year the farmer with the poor can of cream is going to have just about as hard a time in selling it as we had last year with some of the butter we made from it.

It is possible that I have said a little too much as regards the effect of the quality on our future, but to me it seems vital. There are two other important factors that always affect our future and they are the buttermaker and the manager.

Let us hire the best buttermakers that we know of and then pay them a salary commensurate with their ability. We cannot pay a good man too much or hire a poor one cheap enough. When we have secured a good buttermaker let us have a manager who is on the job every minute, one who can hew down the expense account to the last dollar, one who is thoroughly in touch with every detail of the business and who is in harmony with the buttermaker and ready to stop every leak. I know of no business in which you can get rid of your money with such ease and facility as in a creamery with a poor buttermaker and a poor manager.

In conclusion I wish to say that I do not share the pessimistic views of some authorities regarding our future. I am rather inclined to be optimistic. I believe that the gathered cream plant is an institution that has come to stay. It is a permanent benefactor of the community in which it is located and it stimulates every other line of business and I am well satisfied that by following along the progressive lines on which we have started that we shall make greater strides in 1911 than in any year of our history.

DISCUSSION.

The Chairman: I believe Mr. Grove is on to lead this discussion. Is Mr. Grove in the room? Well we have lots of good buttermakers to carry on a lively discussion and I want you all to feel free to express yourselves on this question, the future of gathered cream plants. Have you any questions you want to ask Mr. Eldridge?

Mr. Shilling: I would like to ask Mr. Eldridge if he is grading his cream now?

Mr. Eldridge: No, we are going to begin the first of April.

Mr. Shilling: Have you evolved a plan to do this?

Mr. Eldridge: We are working on several plans. As a matter of fact, we expect this question will be taken up tomorrow afternoon at the meeting of the Creamery Managers and Owners Association and discussed quite thoroughly. What we would like to see would be a uniform plan of grading and we thought it might be possible they would

have evolved a plan to submit at that meeting, and that from the report of the committee we may be able to establish a uniform system of grading in this state.

Mr. Joslin: What do you think of grading on the acidity test?

Mr. Eldridge: I do not think much of it. We might say that cream of a certain acidity would pass for second grade cream, but I do not believe that will always hold good. I believe the flavor has a good deal to do with it and that we cannot successfully grade by saying that cream of a certain acidity shall go as second grade cream. Coming right back to my proposition of this forenoon, I believe the buttermakers have to use their experience in making butter in the grading of this cream, and that is the point where we are going to have trouble with the creameries having stations. We have put our experience against the men who are undoubtedly unfit to handle cream at all.

The Chairman: I for one have been so anxious to have this creamery meeting that we are to have tomorrow, that I could scarcely wait for the time to come. I want to get in line on grading and would like to get started before April 1st. I have always had two grades of cream, if the cream was below a certain standard I have deducted the patron two cents a pound. Someone suggested this morning that it was better to establish a certain price and then pay over that for a better quality, and I have been considering the matter ever since the gentleman suggested it, and have come to the conclusion that to establish a certain grade and go down is the proper thing. It looks to me as if it would be better to base your price say on the Elgin market and then deduct from that for inferior quality.

Mr. Dean: The statement has been made in regard to grading and I will give you the experience we have had there. A year ago last January we began to grade cream. The condition had become such that it began to grow upon us that we had to do something along the line of improvement. I prepared circulars and advised our patrons that we would commence grading cream the first of January, and as a result we immediately lost 25% of our patrons. Some of the stockholders came to me and said "You are establishing a very bad precedent here." I said I would try it anyway, regardless of results. Those patrons that left did not give us a chance to pass on the quality of their goods at all, showing at once that they were guilty of bringing poor stuff. We continued grading for two months and we kept on losing patronage very rapidly until we had lost about 40% of our patrons. The result was that we had to come back and pay equal prices. On the grading system which we commenced we paid one-half cent above New York extras for good sweet cream, and three cents below New York extras for poor cream. When a patron came to us with cream that we considered below standard and we reasoned with him, explained to him that he should do better, that it was to his advantage as well as to ours, he simply said if we did not want the cream he would take it to the next town where he could get more for it than we were paying. This naturally grew worse because last summer, as you all know, was an especially hot season, beginning early, for cream. The hot weather set in early and the sultry weather made it very bad and we got poor stuff, and of course we could not get the price at the market end and so we had to cut the price. Our competitors outside offered two cents above

Elgin irrespective of quality, age, condition or previous condition of servitude, so we had to come back to the old regime of paying equal prices. A gentleman said this morning that if a small creamery stands pat it will win out in the end. Four years ago I would have agreed with this man because we thought no centralizers could touch us because we treated everybody fair and square, giving them all a square deal. We have carried out that in our dealings but when a class of people came along and offered more than we could possibly offer it was an incentive to the farmers, and if they are offered one cent more for the time being that one cent held up to his vision shuts out the dollar he can see in the future, and it is a detriment to the local creamery. What it is going to be in the future I cannot tell, but I would vote with two hands that we would adopt a plan of grading and pay according to value because that is business, and it is the only thing in the future if we can get at it in such a way that everybody will hold to that plan. If we could have a system of inspection so a man could go to a creamery or weighing station and inspect the stuff, and if it is not fit for human consumption confiscate it right there and then and not let it go into the article for which it is intended, I believe we could accomplish a great deal. As long as there is this competition where slovenliness is at a premium we cannot succeed, gentlemen.

Mr. Eldridge: I believe that grading is a step in the right direction. I believe we are going to accomplish something by that but I would like to ask the exponents of grading, if the cream that you are buying at three cents or five cents under New York is so poor, have you any legal, moral or any kind of right to manufacture that stuff and sell it for butter? Is not the oleomargarine product better than butter made from rotten and spoiled cream? You can go to work and educate the farmers and tell them you must have the factory grade the cream, but why not leave this spoiled and rotten stuff alone?

The Chairman: I believe we have one great factor that we never had before to help us, and that is the commission end of it.

Mr. Joslin: I think that is going to be one of the greatest helps in grading cream, that is the commission end of the business. In my work as butter inspector on the market I have come in close touch with this and I find that the commission men have agreed they cannot do as in the past and they are about through paying the same price for different grades of butter. The difference at the present time, or when I left Chicago, was nine and one-half cents between butter scoring below 87 and the price of extras, which means 93 and above, and that nine and one-half cents difference makes it worth while for the patrons to take better care of the raw material so a fine grade of butter may be produced. I believe we need not worry about those conditions being continued in the near future, from the fact that his competitor cannot make that cream that is being turned over to him into butter that will bring a fair price, and they certainly will not carry it on very long at a loss, and therefore the more of that kind of cream you can turn over to him the quicker he will get out of business or else he will have to refuse it the same as this gentleman has done. I think this is the condition and, although it is a hard thing on the creameries at the present time, it will work out a great benefit to the dairy industry as a whole because we will all be forced to produce good butter in order to get the best

prices. At the present time there is standing in the basements of Chicago, butter that the dealers would be glad to sell for 18 or 19 cents. That butter is only a fair second and the reported price of seconds is 17 cents, but they are holding it for 19 cents and you dairymen and farmers know at the present time with the price of grain what it is, cannot afford to produce butter at that price, and the only salvation is to make butter that will sell at a top price or else produce it at a loss, and we know if the farmers cannot get a good price for their butterfat they will quit producing it, they will not milk cows. They can do something more profitable, but we know if they make a good grade of cream they can get a high price for it.

Member: It is hardly probable that any one can promulgate a plan by which we can eliminate trouble in the creamery but perhaps the more different ideas we get the better chances there will be to get a remedy and as a producer I do not like to take more blame than belongs to me, and I believe the great trouble is that too many of us try to put all the blame onto somebody else when it really belongs on us. While there is no doubt a great deal of poor cream and it is due to mismanagement and carelessness on the part of the producer, I think you will admit that at least 50% of the trouble is due to the fact that it is not delivered to the creameries as often as it should be. That is because the average farmer cannot afford to go to the creamery with his little batch of cream. It is not the legitimate duty of the up-to-date creamery manager to organize a gathering department? If the cream will not be brought to you why not go after it? I believe the creamery can better afford to gather the cream and do it cheaper than the farmer, and if you go after this cream you can get it as often as you want to in good condition but if the farmer holds it until he can get to the creamery in most cases it will be too old. I believe a great many creameries in this state ought to gather their own cream and get better profits, and not only help themselves but help the farmers and do the hauling cheaper. Our manager has organized for that; he keeps four teams on the road all the time gathering cream and milk. The plan is working out very good and I believe it is worthy of your consideration.

The Chairman: Now some of you fellows say that the only method is to have a man haul his own cream, get up and discuss this. That is my method to gather my own cream and discourage individual delivery. Hit the centralizer a whack every time you can and I believe you will do it by gathering your own cream. At Caro we have three patrons who deliver at Cass City, we have one, and last summer we had on our payroll 420 patrons. We have the gathered cream system but sometimes it becomes mighty expensive, especially in the winter when it costs five cents a pound to gather butter fat, but I believe it is the safest system.

Member: How often do you gather the cream?

Member: Ans.: Three times a week in the hot months, twice a week in the Spring and Fall, once a week in the Winter, but once a week is a little too old. The cream gets a little of that old flavor.

Mr. Smith: Mr. Bechtel spoke about making a cut of three cents a pound on poor cream. Who is the judge of the quality of this cream; is it the hauler who makes the decision as to the quality? If you have been making a cut of three cents a pound on the cream why have you been receiving such low returns on your butter of late?

Mr. Bechtel: The cream all comes in individual cans and some of our competitors have been paying one cent a pound more than we have and we have been a little careless in the last six months in regard to grading but we insist on every man sending his cream in individually and when a patron's cream falls below the standard and I write him a nice letter calling his attention to it, but for the last eight months we have been a little careless. We have not followed that plan up as closely as we should have.

Mr. Hagedorn: Mr. Chairman, do you have any cream shipped in from the railroad? We are getting lost in this big field here and I would like to find who is the centralizer and who is not. These little creameries are reaching out wherever they can buy a pound of cream, reaching out twenty, thirty and forty miles away. I would like to know whether they are centralizers.

The Chairman: Last season I started one or two receiving stations but I have ordered all our machinery brought home and I am going to have a station. I believe the local creamery man has no business going out and establishing receiving stations, or if he does he has no business to talk about quality.

Now, perhaps, we had better drop this subject. Is Mr. Sondergaard in the room. Mr. Sondergaard, of Philadelphia, will now talk to us on "Market Conditions and How to Improve Them." I think most of the buttermakers are acquainted with this gentleman.

MARKET CONDITIONS AND HOW TO IMPROVE THEM.

H. SONDERGAARD, PHILADELPHIA.

Mr. Chairman, Ladies and Gentlemen: This is my first visit to Michigan. I have met many of you at the national conventions and I have learned that you are hard workers. Since coming here I have found that it is not only those that come to the national conventions that are hard workers and I must say the whole crowd is just like Mr. Rabild and those fellows you send to the conventions, so I am pleased to meet you and to be with you. I have for a subject "Market Conditions" and I hope you will bear with me for reading a paper on this subject.

Being of the opinion that a good live discussion of a subject is of more value at a convention than a long paper, I shall be brief in my remarks on the subject given me, "Market Conditions and How to Improve Them."

"Butter is King" is an old saying, which no doubt originates from the fact that the dairy business has done more than any other branch of agriculture towards lifting the mortgage from the farm and greatly improved agricultural economic conditions. Since having had a chance to look into market conditions of butter and also knowing something about what the creamerymen have to contend with, I should like to add a word to this old expression and say "Good Butter is King." If you are making good butter of a quality that will pass critical inspection so that the buyer makes up his mind to buy it, then it becomes only a

matter of price, and it can always be disposed of to a good advantage so that you need not fear poor market conditions; the oleo output, the centralizers or any legitimate competition you may have in the creamery business. On the other hand, if you are making a so-called under-grade and it is shown to a buyer, then the question ever arises, can he use it at a reduced price, and here your commission man will have to listen to what the buyer will pay in order to sell the butter.

A good business man will first plan his work and then work his plans, and the creamery business is no exception. Your business requires more planning, better management and closer attention than a good many other lines of business. If a creamery does not succeed, I venture to say that nine times out of ten poor management is the cause. You may say "what has this to do with market conditions" and I will answer, quite a good deal, for the simple reason that no one can do a satisfactory business for any length of time, with any one who is doing an unsatisfactory or a losing business.

It is quite necessary, in order to obtain the best results, that the creamerymen and the butter dealers should work in close co-operation, and no doubt there is room for improvement along these lines. The reason for a rather slow progress in this respect, I should say, is due to the fact that the butter dealers and the creamery men do not see each other often enough; they do not know each other well enough. The butter dealers in their anxiety to do a great volume of business, do not always state in detail just what the creamery men could do to make their butter worth more on the market, and so they do the best they can under the circumstances. When making a complete report, the question at once arises—how will the creamerymen take it? Will they consider it a business information that will tend to bring them more money for their butter and keep on shipping, and at the same time do their best to make the necessary improvements.

For the creamery man it may be said that should they have a poor churning at times, which will happen the best of them, then some of them may figure that should they mark these poor tubs and explain condition then they will get about five cents less for this churning, and so it is allowed to "slip through." This is also a mistake. A keen buyer will find the poor tubs, or they may be sent out to the regular trade—the customer starts to bring it back to the retailer. He gets disgusted with your butter and kicks to your commission house.

These existing conditions are not new by any means. Years ago over in Minnesota, we bragged about how long we could send butter to our commission house without hearing a kick from them, and so I say again—we should know each other better and we would like each other more.

The creamery men should visit some of the big markets once or twice a year so as to study the market conditions of their butter. If some of them would see in what condition their butter arrives and just what it is worth on the market, they would be surprised, while others who are making fine butter would be more firmly convinced that they could not afford to produce anything but fancy butter and they would go home and tell their patrons why they should be even more careful regarding the care of their milk and cream.

● PACKAGE AND PACKING.

In a short review of the score card, we will start with the package as that is what first catches the eye. A neat package helps the sale of any article and butter is no exception. If you cannot improve the quality, perhaps the package and the way the butter is packed can be improved. Use only the heavy tub tins and see that the nails are driven straight into the wood so that they will not pull out. The tubs should be stencilled plainly, on the middle of the cover, with the grain of the wood. Use the best grade of tubs and have them well prepared before used, so that the moisture will not leak through, and the hoops will stay in place. Too many shipments arrive on the market with the hoops falling off and with broken covers. After such a tub is fixed up and a new cover put on, it is suspicious looking for it has no stencil number on it. Some lots will run very even in weights while others will vary as much as five or six pounds. When there is a great variation in weight, we invariably find that the butter has not been packed solid. The trade as a rule objects to large holes in the butter, so a good plan is to strip a tub now and then to see how the packing is done.

Paraffining the tubs is a good plan. It gives less shrinkage and helps to prevent mould, which is a serious proposition every year. Do not listen to the man who tells you that when you paraffine you will never be troubled with mould. Mould can form where the air is moist and warm enough to develop, so keep the tubs in a dry place, wash and steam them well before using. Tub linings and circles should be kept under cover in a dry place. Keep the refrigerator well iced and see that has the right circulation so the air is dry; also have it well isolated so that it will keep cool. It has been argued that mould would form on the way to market. That I cannot talk of from actual experience but will say that if mould is present when butter leaves the factory, it might develop and show when it gets to market. If there is no mould present when butter leaves then I should say that it could only form on the outside of the tubs and there is not much danger of this as the Bohn System of air circulation is in general use by the railroads.

SALT.

The amount of salt to use will vary some according to the trade, but some of the general rules to observe are that the salt should be dissolved in the butter. It is quite important that each churning is salted alike. If there is a variation in the salt, the buyer has a chance to find fault and it will operate against the sale. The general opinion of too highly salted butter is that the maker had received some poor material which he tried to hide, and in fine butter it has a tendency to cover up the good flavor and only show coarse salt. I want to warn against incorporating a lot of salt in order to increase the over-run. You will lose more in the price than you gain in the over-run.

COLOR.

As you know the shade of color to produce, varies according to different markets, but if I was making butter now, I would always aim to use some color and have it a fair good shade so as to make a distinc-

tion from Oleomargarine. It is of great importance that each churning has the same color, or at least, that there is not two colors in one tub. Any butter dealer will tell you that he has had butter returned for the reason that there was two different colors in one tub. Never let any butter leave the creamery that is decidedly mottled. No one can tell you before hand just what it will bring. I recall a shipment that was worth 30 cents a pound had it not been badly mottled. We have no way of reworking this little lot and when finally sold it for 25 cents, I was sure we made a good sale. Another case, when some butter was shown to a buyer who was very critical on the color, by examination it proved to be slightly mottled. Of course, the lot was turned down and this man stated that he did not know at all, but he knew that the white streaks were old sour butter-milk and that such butter would get strong in no time. Whether he was right or not does not make so much difference for the fact remained that his trade objected to mottled butter. Such butter can be reworked so that the mottles will disappear, by first having it at a uniform temperature and adding some salt water in the churn so as to protect grain, moisture and salt.

FLAVOR AND QUALITY.

During this winter the demand for fine butter and great amount of under-grades on the market created a wider range in price than ever before, so that if there ever was a time when butter had to be sold according to its quality, that time is here now. Poor butter and good butter are becoming two distinct commodities and are being dealt with now just as a storekeeper sells hats and caps. The price of hats may go up at the same time as the price of caps go down. The price of good and poor butter has taken just such a course of late, while good butter increased in price. Poor butter would even become weaker. The common law of demand and supply is sufficient reason. The demand for the best grade is increasing while the supply of the under-grades is so plentiful that the buyer at times can almost name his own price.

It has often been stated that poor butter would be made just as long as the trade would keep on paying about the same price for poor butter as they do for fine quality. Now, we have a difference between the two of nine or ten cents, that is certainly enough and I feel sure that a great many think it is too much difference, so that it is time for all the creameries to plan a system whereby cream and milk must be paid for according to its quality or value, just as it is now paid for according to its percentage of butterfat. We must depend on the creamery-men and the leading dairymen to start a general fight against poor butter by paying for the material for butter production according to its value. These men must show the patrons who do not know much about creamery economics that it is the most profitable way to run the creamery and dairy business. The whole trouble with the farmers who do not know is (Gov. H.) that they want to take hold of a \$75,000 business with a twenty-five cent understanding. If your butter is not of the right quality then the place to start making improvements is outside of the creamery. Improve the quality of the raw material by paying for it just what it is worth. Do not start to pay only one or two cents more for sweet cream, but make it four cents at

least. When old and sour cream is delivered, pay that much less. The creameries using this method now, have shown that it works with splendid success, and besides improving the quality, it will also create more business, the patrons become more interested when they see the increase in price and so they take better care of their cows and work more into dairying.

TEXTURE.

It should be remembered that the buyers pay close attention to the texture and the way the moisture is incorporated. Too many lots are being criticised for being leaky, short or brittle, pasty or even having a cheesy body. A great deal of butter is being put up in prints and if such butter is defective in texture trouble will accrue as soon as it is being printed, either there will be great shrinkage from escaping moisture or the prints will look greasy, but worst of all is when the grain is short and brittle, then the prints will break at different places and cause an untidy looking package. It is well to keep in mind that any line of butter that is not well made will be rejected by a critical buyer when he can find what he wants among other lots that is well made. A very important part of the buttermakers daily record is that he scores every churning a few days after it is made, not only as to the flavor but consider every detail and the workmanship as well. A creameryman wrote in a short while ago asking what in the world was the matter with us butter dealers when we could not hold up the price of butter at this time of the year. He was of the opinion that the wholesalers could just name a price which would immediately become the selling value of butter for that day. If this was the case, we would have seen a 40-cent market this winter so that storage butter could be sold at a big profit. Let us suppose that the different markets had held the quotations to 40 cents this winter, would there have been more butter consumed on that account? No, of course, the people would have used less and the cold storage plants would have to build additions to their plants at this time, instead of decreasing their holdings so as to be able to take care of their usual surplus made during the summer months. You know that Philadelphia, Chicago and Elgin have butter boards that gives out quotations while New York leaves it to "Urner-Barry Publishing Co." It is not the general opinion that New York has lost anything by the change they made a few years ago in arriving at the actual quotation for butter. Denmark on the other hand has quite an unique butter board consisting of two Commission men, two dairymen and two creamerymen and one from the Government and still there is trouble at times when the quotations do not express the real selling value of the butter. After all has been said, it still remains that the consumers of butter sets the price, for anybody who wants to sell must put it at a price where it will sell. If the quality is fine, it will create a bigger demand and the dealers can ask more for it. If the production of the quality wanted is growing less then the price can also be raised. This does not infer that you should go home and kill your neighbors cows, or hobble the Canadian cow, as you can produce results in a much more graceful way by making better butter.

It is no doubt a fact that the great supply of undergrades at this

time has dragged the price of good butter down to some extent but good butter is in great demand and we can not get enough of it, so the time is here when those who have set out to supply the people with one of the noblest and healthiest food product the world has ever known, must make up their mind, before we can solve the problem, including poor market conditions, that they must "hang together or hang separately." It does not pay to associate with the man who insists on producing poor butter.

The Chairman: Do you wish to ask Mr. Sondergaard any questions? He comes right from the place where you are sending your butter, so let us ask him questions. I think he must have covered his subject very thoroughly as you do not seem to have any questions to ask him. If you have no questions to ask, we will take up the next topic on the program this afternoon, "Creamery Accounting" by Mr. Martin Seidel, of Bay City.

CREAMERY ACCOUNTING.

MR. MARTIN SEIDEL, BAY CITY, MICHIGAN.

Mr. Chairman, Ladies and Gentlemen: I am especially pleased to note that there are so many ladies present this afternoon when I take up this subject, as I find that the ladies in a great many instances are doing this book work.

You have heard during our meetings of yesterday and today from some of the best authorities on the different subjects; how to produce butterfat in the most economical way; what the government is doing for you and its efforts to bring about these productions economically; also what equipment is necessary for its production. You have been placed in the position of the consumer showing his side of the butterfat question. At these meetings you have discussed the method of buying and getting into your possession this butterfat through co-operation and organization. You have again and again heard how some of the experts of our country are turning this butterfat into butter so as to produce therefrom the highest quality of product.

At home while you are at work it is your constant aim to increase the production of the dairy. You will study conditions in your territory and do your utmost to give your patrons the best service and satisfaction. You will spend extra hours in the manufacture of butterfat into the highest quality of butter. You will experiment with your package and study market conditions so that you may realize the most money per pound from your raw material.

After you have gone to all this trouble, hard work and worry, the thought strikes you, why are you doing all this? Are you doing it for your health? I do not think so, for there are healthier occupations in this wide world than the moist work of the creamery man. Are you doing it because it is a real pleasure to you? This does not hold true with the greater per cent of our creamery men. There is no great pleasure in being constantly abused by someone who does not know

what he is talking about. There is no pleasure in spending long hours and giving the business as close attention as is absolutely necessary. If it is not for health or pleasure, two of the greatest gifts to man by nature, why is it that you work, and fret, and fight so in this business? The object of it all is to gain possession of that almighty dollar.

What good does the accumulation of butter fat do, providing the other fellow gets the dollar out of it? Of what use is the large patronage and the production of carloads of butter if it does not swell your bank account? Of what use to you is it to turn out a high grade of butter if there is not a cent in it for you? What use to have a friend on the market disposing of your goods if you pay more for the raw material put into these goods than the proceeds of your account sales mailed you by your commission man, and the whole transaction nets you nothing for your trouble and labor? What you want from these different sources is a profit.

You want a profit on your operations; each and every one of them. You do not want any losses.

If we can do business whereby our different departments show us a large margin and we have no leaks in our business producing losses, we have gained our point. We have gained that for which all the world is striving, namely a showing has been made at the end of our fiscal year.

Possibly your business is on that ideal basis, but nine chances out of ten there are still a number of leaks which must be stopped. How can you find these leaks? How do we know which are the best paying departments in our business? We can only know these things from our accounting system. Our accounting system shows with what success we are meeting; shows us where we stand in the business world; shows what branches in our business to pursue to the utmost and which to drop. A great per cent of the failures in the creamery business today are due to the fact that either no accounting system or a very poor one had been installed and used while the failing concerns were doing business. They do not know which ends of their business are profitable or otherwise they would push them harder and make more money. They do not know the weak ends of their business or otherwise they would stop operating the losing departments and keep what hard earned money they have, and not allow it to leak away by letting these unprofitable departments rob them.

Many of the managers in our State, when engaging their bookkeepers are not as particular about the qualifications of the person whom they engage as they might be. When they engage their haulers, station men or buttermakers, it appears to be a matter of quality with them and not so much a matter of cost or wages, but when it comes to engaging their bookkeeper who is of just as much importance to the business, it becomes a matter of cost or wages and not a matter of quality with a great many of the managers. Many times an inexperienced person is engaged who has not had the least experience in creamery work and does not know how to handle patrons when the manager is not present. He is hired simply because he will work for less money. A poor economy.

I believe that a creamery bookkeeper should be one who is quite familiar with all the operations of the creamery business; in fact if he should have had the experience of the work in most of the departments

of the creamery, it would be for the good of the creamery in which he works. A creamery bookkeeper should above all things know how to test milk, cream, butter-milk, and make moisture and salt tests himself. He should not only have seen someone make these various tests and have them explained to him, but he far more should be so experienced along these lines, that he could make suggestions to those who actually do the work. It is up to the bookkeeper to find the losses in the business and for this reason he must be able to make these various tests himself, for it is the tests which, to a great extent, form the basis for checks.

Your bookkeeper should be thoroughly familiar with up to date systems of accounting. He should thoroughly understand double entry bookkeeping and cost systems. His work should be absolutely correct and you cannot use a person for this work who is at all negligent or careless. Balances must be struck at certain times and they must be worked out to the penny. Your cost system must be absolutely correct, which requires a man who will take pains with his work and not drop a matter if he cannot get it to balance in a minute. You must have someone as bookkeeper who is perfectly honest and above all things who is neat in his work and whose motto is "Do it Now." Never leave for tomorrow what you can do today, for then you will be sure to overlook it.

The manager must see to it that the bookkeeper is furnished with certain information regarding the business. This especially holds true on checking up the work of the other man. There are times when the bookkeeper may ask for extra weights and tests which are not ordinarily made. He requires these tests and weights for checking up other weights and tests, and if the manager does not see to it that the bookkeeper is furnished these the bookkeeper cannot give the manager the information necessary for checking losses. This information must be furnished cheerfully and promptly. On the other hand when such information is necessary I have found it in my experiences that I could obtain the same the easiest by explaining to the manager fully what I wanted and by showing him, in dollars and cents, the savings to be effected, by him furnishing such information.

Your bookkeeper must be supplied with the right quality of forms and stationery. He must figure out the value of office machinery of different kinds and show approximately in dollars and cents, how soon the same would pay for themselves if installed in the office. Considerable time can be saved by this new line of machinery which means dollars and cents to the business. It seems to me that no creamery of any size could do without an adding machine or a typewriter at this date. A regular size adding machine will pay for itself more than once each year in the average creamery, which also holds true with a typewriter. Our managers after being shown in dollars and cents the saving of such machines should co-operate with the accountant by giving him the same. A creamery bookkeeper must keep in touch with the work of the buttermaker and the test man. A great deal of their work must be done together so that the required results can be obtained. I have found by past experience that it is well to explain to the buttermaker or test man why you require certain information, and nine times out of ten you have gained your point with your man, simply by show-

ing him this one thing in a plain manner. If they are working for the interests of the business they will readily furnish any information which help to decrease the losses or increase the profits on January 1.

I will now give you my ideas on the different problems of bookkeeping in the creamery and will attempt to take them up in the same order as the cream would travel from the farm through the creamery, to the market. The first thing we do is to get acquainted with our patronage. This can be done in various ways. It can be done by personal canvasses; by meeting your patrons on the streets or when they come to the creamery; or by advertising. I believe that it is well to make a note of what each patron has to say regarding his dairy business. Whether you do it on the road while canvassing or when you meet your patron at the creamery or on the street. These notes which you take at this time should be transferred on to cards which can be filed away and used for future references. You will now have a starter for a follow up system on your territory work. As the season advances it might be well for you to check over these cards with your cream ledger and see which patrons you are getting cream from and which not. Then you can use your best judgment as to the method to be used to turn those back into line who are not selling you their cream. This method is practical only in the local creamery and not in the centralizing plants. In the centralizing plants it might be most profitable to canvass only the best territories and let your station men follow it up.

We will now imagine ourselves doing the bookkeeping work in the skimming station and workroom. The cream is received, weighed, sampled and tested and a report of the same filed in the office ready for the bookkeeper to do his share of the work on the same. At this time in a local creamery it must be the bookkeeper's principle aim to arrange his work in such a way that at the end of his operations for a certain period of time he can readily tell the amount of each patrons sales, also the amount of cream and butterfat received each day. He must further arrange his work so that he can use a double entry system of bookkeeping on the same, thereby being able to prove his postings at the end of a fixed period. This can be accomplished in the first place by keeping a copy of every statement which he issues to the farmers. The separator amounts of these duplicates can be credited to the individual accounts of the patrons on your patron ledger and the total charged to cream account, thus making a double entry of the same. Please remember that in following up this system, which I am attempting to explain, it is absolutely necessary to have a listing and adding machine or otherwise the system is too expensive and by no means accurate. After the statements are issued checks must be written, and possibly the best manner of keeping track of the same is to register them on a check register instead of using the stubs of the check book as is customary with a great many creameries. The principle advantage in using a check register is that you can readily foot up the amount of checks issued and the amount of your deposits which will enable you to show the balance on hand in the bank according to your books at any time when required. Another advantage in the check register is that when the vouchers are received from your bank they can be checked over, and by the use of your adding machine you can foot up the checks not cashed, which total together with your bank balance, according to

your books, must equal the balance on hand by your bank. This system will be found to advantage, especially where a large number of checks are issued.

I have always made it a practice to enter all my supply invoices in the journal and posting them to the credit of the various supply houses' accounts and posting the total of these amounts to the debit of my supply account. The object of this is to be able to trace any differences which may arise in the accounts of supply houses and gives you a ready medium for checking up their statements. If the statement is O. K., issue a check for the same and enter this check on the check register and post it to the debit of the supply house's account, and your account will balance. It might be well to suggest that a journal drawn up with several columns on the debit and credit sides, headed with the principle accounts used, according to the business you do, will save extra postings and will give you the same results. This fact holds true in the cash book. Money received on an account, which is not one of the general accounts for which you may have a column, is placed on the credit side of your cash book in the "sundries" column and posted to the credit of the account. These extra columns in the cash book and journal could be headed, for instance, "cream account," "butter account" and etc., and if for instance you should receive an account sales for a shipment which is naturally kept track of on your consignment book, you can credit the net of the amount of this account sales to the butter account, by putting in your cash book a notation showing the shipment for which this check was in settlement of, and placing the amount of the account sales into the column marked "butter account" in your cash book and at the end of the month post all these entries to the butter account in the ledger by making one posting of the total of this column only. In closing your cash book at the end of the month the total of the totals of "sundries" column on the credit side of your cash book and the columns of the general accounts on the credit side of the cash book is posted to the debit side of your cash account in the ledger, and the total of the sundries account added to the totals of the columns, such as supply and expense accounts on the debit side of the cash book, are posted to the credit side of your cash account in your ledger. This total must not include the total of your deposit column as that naturally will be taken care of by the cash account itself, for at the end of the month you post the total of your checks issued to the credit side of your cash account. This, as you will see, gives you a double entry on all this work.

It is not sufficient that this posting be done every day and accurately, but you must be absolutely sure, after you have posted a book, that the same is posted correctly, for two reasons; first, your work should be correct before you leave it and second, it is much easier to find an error in one day's postings than in the postings of the entire month. This work you can prove to be accurate or inaccurate by use of the adding machine. You can obtain from the manufacturer of the adding machine a number of small strips of very tough paper of two different colors, one marked "debit" and one marked "credit." When posting your ledger from your cash book or journal, or in fact any other book, such as check register and sales book, after each credit posting and debit posting you have made, you lay the proper colored strip of paper

on to the ledger page on which the posting has been made. After you have completed your posting for this particular page you naturally have the total already footed on the page from which you posted and all you have to do in order to prove that your postings are absolutely correct is to turn to those pages where you have inserted strips and on your adding machine strike totals of all the credit and of all the debit postings made, which totals must agree with the totals on the pages from which you have posted. If these totals correspond your work is correct thus far. If they don't correspond, it is up to you to check over your work for that page and see where you made the mistake. This will aid you in striking your trial balance at the end of the month, and after all this you will know that your work is absolutely correct as far as you have gone with the same.

In shipping goods I have found it a good policy to have three copies of the invoice in different colors. These invoice blanks should be put up in pads of about 50 sets to the pad and numbered in triplicate. When you receive an order you enter on these three blanks, by the use of carbon paper, the name of your customer, his address and shipping instructions, also the quantity and style of packages wanted. Then draw out your lower carbon sheet and enter the price, which will show only on the two upper blanks. The lower blank goes to the shipping room and weights are entered on same and returned to the office. When it is returned you take the first two copies and extend your invoices on the first and second copies. The first carbon copy can be used as an invoice to your customer and the original copy can be filed in a binder and used as a posting medium. The third copy or shipping order can be filed in a binder for future reference also. The amount of the sale together with the invoice number and date are posted to the debit side of your customer's account and at the end of the month the total of all your sales are credited to the butter account in the ledger.

Thus you will see that up to this point we have paid for our cream, shipped our butter, received our money for same, and at the end of the month, are ready for our trial balance.

It might be well to suggest that collections must be followed up very closely. If you find that an invoice is past due and has not been paid for, write your customer a letter calling his attention to the same requesting him to mail you check. If he does not reply to this letter write him another letter making it a little stronger, but do not, by any means, go after him too hard for he may simply have overlooked the matter and by going after him too hard you may lose him as a customer for the future which might result in a bad loss. If he does not reply to the second I would suggest taking the matter up with him once more telling him that something must be done and if he does not reply to this third letter I should consider him a poor customer and a person or concern with whom you do not care to do business. Then the matter must be considered and the best possible steps taken for forcing collection. Do not allow your accounts to become too old as in most cases it is rather hard to collect them without loss to you.

Possibly the next important thing to consider is the churn record. These records must show the weights of cream and amount of butterfat used in each churning, also the number of packages of each style and any incomplete package and its weight made from each churning.

Also the moisture and salt tests. The latter part of this churn record must be filled in by the butter maker. The amount of cream and total weight of butterfat in this churning is filled in by the bookkeeper. These can readily be determined by the use of the adding machine and the duplicates of the statements furnished the farmers. The amount of over-run must be figured according to the salt and moisture tests and also according to the amount of butterfat used and butter made in each churning. If these two per cents of over-runs agree reasonably close, the work of your buttermaker and tester have been done correctly; if not you will usually find your trouble in one of two places, either your test man has not done his work correctly in testing the cream or your buttermaker has not churned the cream as he should have done, or he has made a mistake in his moisture or salt tests. These churn records must be figured just as soon as you can possibly obtain the information necessary. If they do not check up correctly the matter must be taken up with the right party in the work room and corrected before too many churnings are made showing the same inaccurate work.

The amount of butter manufactured according to this churn record is now transferred on to the stock record and the amount of butter sold is also transferred on to this record and the difference between the butter manufactured and the butter sold must equal the butter on hand. If it does not agree we have two places to look for errors. The first is on your churn record. If the butter maker has entered a wrong number of packages manufactured it will throw off your stock record. The other place to look for trouble is on your invoice system as you may have shipped some butter for which you have not made out a charge. The object of this stock record is in the first place to prove that all goods which have been shipped and sold are charged and in the second place to furnish you statistics for your creamery business.

At the end of each week after all butter manufactured for that week has been sold the totals of the butter fat used and butter sold and the amounts received for same are transferred to the margin record and in the various columns on this margin record the cost of manufacturing that weeks butter and the cost of the raw material used during that week and the balance shown between the totals of these figures, would show you your margins or losses for this particular week. It might be well to do this work each week so that in case of losses you can check them before the business has gone too far.

In skimming station work you can compute the amount of butter fat paid for approximately each week and when the cream from the same is received at the churning station the same should be weighed and tested and butterfat computed on same and compared with the butterfat paid for. If the same agrees reasonably close, you have not lost anything on your skimming and testing process. But if they do not agree or nearly so you should at once look into the matter and see where the trouble lies and remedy the same. You can check up routes on which your haulers do the sampling themselves in the same manner.

A great many of you are experiencing trouble in losing cans during the season. This evil of the creamery business can be eliminated to a great extent by keeping track of where you place your cans. It might be well to suggest that although it might make you some extra work, it would be well for you to take a receipt for every man to whom you

loan a can and when he returns the same give him a receipt for it. These receipts which you receive from your patrons are posted on your can record charging your patron with the same, and a copy of the receipt given to your patron when he returns the can can be recorded in your can record, giving him credit for the same and showing that the can is then in stock. This will show you just exactly where each of your cans has been placed and whether or not the same has been returned. If it is not returned at the end of the season you know where to look for your can and it is not a total loss to you.

I have gone over this matter in a hasty manner as time will not permit going into details. We could spend an entire day on this question, as it represents an important part in the operation of the creamery. But certain ones of you may be especially interested in certain departments of bookkeeping for creameries and I therefore wish that you would bring the same up during the discussion of this paper and if time will permit, possibly we can give you what information you may require.

The Chairman: If you desire to ask Mr. Seidel any questions on this subject you will have an opportunity now to do so. I have no questions to ask him because I came to Bay City one day and examined his books and I liked his system very much. I think he has a good system for creamery accounting. If you have no questions to ask we will go on with the program "Shall We Pasteurize" by Mr. C. E. McCready, of Ithaca. Is Mr. McCready present? As Mr. McCready and Mr. Livermore, who was to lead in the discussion of this paper, are both absent, this concludes our program for this afternoon, but we have plenty of time to discuss any subject you may suggest.

Member: I would suggest that you call on Mr. Emmerson to talk about pasteurized cream.

Mr. Emmerson: I do not think the centralizers should have anything to do with this meeting. I do not think you ought to call on us for information, and therefore I do not think it is up to me to give you any details on pasteurization. You do not seem to appreciate what we do and I do not think what I could tell you would do you any good.

Mr. Stafford: I do not agree with Mr. Emmerson at all. I am with a centralizing plant myself and I came here to hear a little about pasteurization. I think there are a number of the buttermakers who could learn something on pasteurization from the centralizers.

Mr. Emmerson: I think Mr. Stafford can give you a good deal more information about pasteurization than I could. We pasteurize our cream, of course, and think it is a good thing. It seems to help the quality and therefore we pasteurize. Of course we all know how to pasteurize, anybody knows that, but it is how to treat your cream before you pasteurize it, that is the secret of pasteurization. I do not think I could explain here just how we do it. It is practical experience that has taught me how and what I could tell you here would not do you any good because I could not explain it to you. The way the centralizers treat their cream is altogether different from the way the individual farmers treat the cream. It seems to be a secret among the centralizers and I guess what they do is their own business. It seems to me they give the centralizers every crack they can and I think there are some people here who would be centralizers if they could, but there have been some pretty hard slams thrown around here at the centralizers.

Mr. Hagedorn: I have had the running or managing of the work in a centralizing creamery for four years. I am very much interested in pasteurization and it seems to me there ought to be someone here who would tell what pasteurization is, not simply say "We pasteurize" and that we all know what that is. We know very little about it. There is a great deal to be found out. What is pasteurization? It is not merely to run the cream through the pasteurizer, cool it down and let it go at that. Someone ought to be able to tell us what is pasteurization; will it help us or will it not and what we ought to do. Temperature is one of the most important things in pasteurization, and I do wish somebody would tell us something about the proper way to pasteurize milk or cream.

Mr. Sondergaard: There is a man here from Chicago, Mr. Joslin, who has had a great deal of experience with pasteurization. Mr. Joslin has been in the harness a long time and I think he can give you some few pointers in regard to pasteurization, and the keeping quality of butter.

Mr. Joslin, Chicago: I do not know that I thank Mr. Sondergaard for getting me in this discussion. I have had some experience in pasteurizing sweet cream for butter making and I will be glad to tell you of that experience, but I do not think it will help you much along the line in which you are interested here, as to how it would work out with the poorer grades of cream, but I will give you my experience and if it is of any benefit to you I am sure you are welcome to it.

There are two methods of pasteurization, the intermittent system and the continuous system. The intermittent system is the heating of the cream to a certain temperature and holding it at that temperature a certain length of time. In my experience in making butter that received many high scores several years back, I used the intermittent system. The cream was heated to 147 degrees. I aimed to run not over 150. I held the cream at that temperature, in the meantime agitating the cream fifteen to twenty minutes, not over one-half hour. The results were, after following that method of pasteurization and using a very good starter to ripen the cream, that I had very good results, both in flavor texture and all other points in making good butter.

In regard to the other method, or continuous method, it is as you know, heating the cream through a continuous machine from 160 to 185 degrees. With the little experience I have had in that line, I would not recommend heating the cream to 185 degrees unless it is done simply to kill bacteria. I believe there is something we practical buttermakers are interested in more than killing the germs in the cream it is the result we get in the matter of flavor, and I have found from 160 to 170 degrees gives the best results in continuous pasteurization. I suppose if there were medical experts or scientists here they would tell us the temperature would not be high enough to kill all the germs or baccilli in the cream. I am not in a position to state in regard to that but from a practical standpoint of flavor in the butter in pasteurizing good cream, from 160 to 170 degrees is the proper temperature with the continuous method, and between 140 and 150 in the intermittent system. I have some ideas of my own in regard to pasteurization but I do not know whether they are worth anything or not. I have seen a lot of butter

on the market made from cream that has been pasteurized, and I have been losing faith somewhat in the efficacy of pasteurization of poor old, stale cream for butter making for this reason, that almost invariably it develops that cheesy metallic flavor in the butter. I am not able to say whether pasteurization is to blame for this. I do not believe it is; I believe it is the condition of the cream to a great extent. Of course that is what we have to fight against and I believe if we can get good cream and then pasteurize it we will get better results. I am thoroughly in favor of pasteurization but I think you ought to have sweet cream in order to get good results and it improves the keeping quality of the butter, and that probably is the chief benefit in the pasteurization of poor cream, that the butter will have better keeping quality, although it will not greatly improve the flavor.

A short time ago I inspected some butter for Professor Lee of Wisconsin, and he has made considerable experiments in pasteurizing poor and stale cream, that is taking a lot of cream, pasteurizing half of it and churning it, and then churning the other half raw. He has been scoring that butter recently, after having had it in storage. The reports vary, one time the pasteurized butter will show up a little better and perhaps the next time the raw cream butter will show up better. It is all poor stuff, scoring below 90, so it does not seem to make much difference in that kind of cream.

I believe the men who are actually in the harness, especially the gentleman who has been speaking are able to give more information on that line, if they are willing to do so, than any of us who only see the butter after it comes to the market, but it is my judgment that some treatment given this cream, especially in the large centralizing plants, has some effect on the flavor, giving it the cheesy, metallic flavor in the butter. I am not able to say just the cause of it but I know the flavor exists and whether it comes from the pasteurizing or from the cream becoming stale before pasteurization I cannot say, but I do know there is a great deal of that metallic flavor butter on the market and as soon as we smell the butter and get the flavor we say it is stale cream pasteurized. If there is anything further I can explain I will be glad to do so.

Mr. Hagedorn: Do you think it possible to reduce the acidity of the cream by pasteurization, also would you advocate a higher or lower temperature according to the fat in the cream, whether heavy or thin cream?

Mr. Joslin: In regard to acidity, I do know that pasteurization will reduce the acidity, not to a very great extent but it will reduce it somewhat. As to the other matter, if you have a very heavy cream you should not pasteurize it as high as a thinner cream, at least that has been my experience, but the temperatures I gave should be right for cream at about 30%. If you have very rich cream and pasteurize it at a high temperature you are apt to have that metallic flavor. I do not know exactly as to the amount of lowering of the acidity. At the Minn. Dairy School we made some experiments along that line two or three years ago, and also in my private work among the creameries I investigated along that line, but the acidity was not lowered so very much.

Mr. Hagedorn: I would like to ask another question. Would you ad-

vocate quick or slow cooling? I would like to have some discussion on this subject of pasteurization.

Mr. Joslin: I have been of the opinion in pasteurization to get the greatest results it was necessary to heat quickly and cool quickly and I have had not experience to prove that that is not the proper thing to do.

Mr. Hatch: At what temperature do you cool the cream after pasteurizing before adding the starter? How long do you let it ripen?

Mr. Joslin: Does this refer to sweet cream?

Mr. Hatch: I would like information on both sweet and sour cream.

Mr. Joslin: My experience with sweet cream has been after heating it the length of time I considered proper, I cooled it to below 70 degrees and added the starter as soon as the temperature reached 70 degrees. In summer I ripened the cream at 65 degrees for several hours, until it attained an acidity of 4-10ths of 1%, and then cooled it to churning temperature, or at least lowered it so it would be at churning temperature in the morning, and I expected to have an acidity in the morning of between 5-10ths and 6-10ths of 1%. I would hold it at the ripening temperature until it reached 4-10ths of 1% acidity.

Member: Is there a demand in the market for sweet cream butter?

Mr. Joslin: I think the dealers are a little in favor of butter with some snap or some character to it; a little more than we can get in perfectly sweet cream that is pasteurized and churned without adding any starter, but I believe that is the kind of butter that gives good results for storage,—sweet cream butter, pasteurized sweet cream and churned immediately, if you cool it low enough so the churning can be done without a great loss in the buttermilk. That kind of butter keeps very well in storage, does not develop storage flavor and comes out with the rich sweet flavor that we can hardly detect from fresh butter. Whereas, when we have acidity in the butter, it develops storage flavor and sometimes goes off flavor, but that rarely happens with sweet cream butter. Were I to make sweet cream butter for the market, I would use a good live starter in the cream and churn it up at once, and that will give it this fresh flavor, and where it is going into consumption inside of a week or two I think you will find it passes very nicely. At present the dealers seem to want butter with a little character to it.

Member: I would like to ask Mr. Joslin if he had cream that came in with 3-12ths to 4-10ths of 1% acidity, if he would pasteurize that cream and add his starter, how long would he let it stand with the starter before churning?

Mr. Joslin: I think the proper thing to do would be to have a good clean, sharp acid starter, add the starter and cool it down sufficiently low to churn, and then churn it at once. I believe that would give the best results. I would not advise ripening that kind of cream.

Member: Suppose you were not pasteurizing at all. What would you do if your cream came in with 5-10ths to 1% acid, like some of the gathered cream comes in, how soon would you churn it?

Mr. Joslin: I would cool it down and hold it long enough to secure a good waxy body in the butter, and churn it at once.

Member: After two hours?

Mr. Joslin: Yes, I think in about two hours.

Mr. Vanderboom: Would you add a starter?

Mr. Joslin: If I had a starter I would certainly add it because a good flavor starter certainly would do some good.

Mr. Hatch: I would like to ask Mr. Joslin one question, not only for my own benefit but perhaps some others may be in the same position. During the summer I get about two-thirds whole milk and one-third cream, some of which is sour, and in the winter I have about one-half whole milk and one-half gathered cream, although my patrons deliver their cream themselves. Our method of handling this cream is, after we have the whole milk separated we begin to cool it down, at this season of the year to 48 or 45 degrees. Of course at this time of the year it comes in pretty cold and we let it stand at that temperature until the next morning, and then we churn. Is that the proper way to handle it, or would you advise churning it the same day, in the afternoon? We get nearly all of our cream in the morning.

Mr. Joslin: Do you use a starter?

Mr. Hatch: We use a starter in the winter but not in the summer. We add our starter when we begin separating in the morning.

Mr. Joslin: In this case, I would advise holding the temperature at about 65 degrees until the starter gets a chance to work in the sweet cream and let that get a nice start, and then the whole mass would act as a starter in the gathered cream. After the gathered cream is added, cool down immediately and if it is early enough in the day so you have time to churn, I would advise churning it, otherwise hold until morning but I would let the starter get a little start in the cream before cooling it down.

Mr. Hatch: How long would you let it stand at 65 degrees?

Mr. Joslin: In the winter three to four hours, depending on the amount of starter and the temperatures.

Mr. Hatch: My milk is all received by nine o'clock in the morning, and the cream is all in by eleven o'clock. Would give me time enough to churn that day?

Mr. Joslin: I think it would. You could hold it until 2 o'clock, and if a temperature of 65 degrees was not high enough to get the proper acidity, you could hold it at 70 degrees; about 2 o'clock cool to churning temperature, or a trifle below, hold it a couple of hours and churn; or you could hold it until morning, but I would not let the acidity get above 6-10ths of 1%.

Mr. Hagedorn: How much acidity should a well developed starter contain?

Mr. Joslin: I never allowed my starter to contain over 8-10ths of 1%. Between 7-10ths and 8-10ths is the proper acidity for a good ripe starter.

Mr. Haven: I do not want to break off this discussion, but there are three questions I would like to have the chairman ask this audience. First, how many creameries are represented here? Second, how many creameries use a pasteurizer three months out of the year? Third, how many creameries use a starter?

The Chairman: All right. How many creamery managers or creamery representatives are here? Rise to your feet. There are seventy-five creameries represented here.

How many use a pasteurizer three months in the year. Please stand. Twenty-four.

Now, how many use starter? How many creamery men in this big audience use starter? (Twelve men stand.) Twelve. Well I pity you. Without starter I do not know what kind of troubles you can be having because it seems that we who use starter are having trouble enough, and I certainly believe in starter. I am worried if my boys say the starter has gone off.

Mr. Miller, Ind.: I use starter every day in the year and I pasteurize at a temperature not less than 185 degrees up to 200. I suppose that almost takes the breath from some of you but I get results, and I also use a good starter. I believe that the law of the survival of the fittest holds out in all animal and vegetable life, down to bacteriology. If I pasteurize or heat cream less than 185 degrees I kill very few bacteria. At 185 degrees, now I do not pose as a medical expert, as one speaker has said, but I have obtained good results pasteurizing at 185 degrees, and my experience is that at a lower temperature very few bacteria are killed. There are some that are not killed even then, but they are in a dormant condition; out of activity. When you have a real good starter, you have the proper bacteria in there, developed under the most favorable conditions, they are strong and thrifty and during the time your cream is ripening they destroy the foul bacteria. If Dr. Hall were here he might find fault with my statement, but I believe it is true. I am not equipped to make a microscopic examination of my cream in the morning or find whether there are any bacteria left there, but the taste and smell do not detect them, consequently I am ready to say they are not there and I put the keeping quality into that butter, which my competitors do not do. The fellows all around me make an article that after you have eaten it, it leaves a bad taste on your tongue, but you cannot find that taste in my butter.

Some of you may have troubles with cream so sour that when it goes over the cooler it will become stringy. I had that trouble and a butter-maker that I had for a short time, who formerly worked for a large western centralizer, said they neutralized the acid with a little lime water, so if any of you are troubled in that way you might try it.

Last summer I noticed the butter was going off a little at a time when it should not, and one day I received a complaint from Pittsburg and another from Philadelphia. I took the letters out and showed them to the buttermaker, and he said he did not know what the trouble was, that he was doing everything as he had been doing it before. He was pasteurizing at that time and I walked over to the pasteurizer and found the temperature at 125 degrees. He said that was lower than he intended to have it, that he intended to have it at 140. I told him to run it to 185 degrees and not let it go below that. He did it and we have had no trouble since. The addition of plenty of good starter and pasteurizing your cream gives a keeping quality to your butter. I will tell you another thing that will shock some of you, I have a starter that the first of next April we will have carried three years, and if anyone can produce a better one I would like to see it.

Mr. Haven: This man is getting down to brass tacks. The reason I called for the information regarding starters and pasteurizing, is that in my work in soliciting butter I have found so many different opinions at the creameries I visited. Anyone that knows anything about the butter business knows there is more butter manufactured in Omaha than

in any city in this country. In fact there are several large centralizers in the city. When I was there two years ago at the first creamery I visited the manager said, "We are making better butter this year than ever before." I asked him why and he answered, "We have a new dairy and food commissioner and he is a crackerjack, and we are getting better cream." "Do you pasteurize?" "No, cut out pasteurizing since we got the new dairy and food commissioner." The next manager I saw said, "We are making better butter this year." I said, "How do you do it?" "We pasteurize this year." I went to the next creamery and the buttermaker said, "We are making better butter this year than we did last." I said "Why," he answered "We pasteurize it and then hold it thirty minutes before we cool it down." Then I went to Columbus, where there is a big plant, and I asked "How are you getting along?" The manager said "We are making a lot of better butter than ever before; I am grading the cream, have cut out the pasteurizer and do not do any pasteurizing at all." There is as much difference of opinion in buttermaking as there is in anything else. In this connection I might say in Wisconsin a few years ago Dr. Marshall asked this question. He found about 14% of the creamerymen present were using pasteurizers and starter and at that time, in talking on pasteurization, he said "We commenced pasteurizing the cream, as it came to the University, at 180 to 185 degrees, and it has been our continuous effort ever since to see how much we can reduce that pasteurizing temperature and get good results, until we have found we obtained equally as good results at 135 degrees where we held the temperature for 20 minutes, and then added a good commercial starter.

Mr. Joslin: In your judgment, as a butter solicitor, was not the butter made in those different ways uniformly poor?

Mr. Haven: It was all poor.

Mr. Joslin: I would like to ask Mr. Miller how much acidity his cream contained in pasteurizing at a high temperature?

Mr. Miller: Sometimes a good deal. If you heat vinegar, the live part of the vinegar that has bacteria in it, will have a flat taste until you put new bacteria in there and give them time to work again. You do the same thing to that cream. You kill the bacteria or reduce them to a dormant condition, and the cream has a flat taste. A man told me once there was nothing there for the new bacteria to develop. In the evening that cream has not an agreeable flavor, but the next morning it will have an agreeable flavor and you can make good butter out of it.

Mr. Joslin: How much does pasteurization lower the acidity?

Mr. Miller: I do not know, I never tested it, but it gets a flat acid flavor and we add the starter to get the right flavor again, and we ripen until we have the right amount of acidity there.

Mr. Haven: Do you hold the cream any length of time?

Mr. Miller: No, I believe in cooling it back to whatever is necessary at once. We use no ripeners, we use open vats and we get good results. I relined them myself last year and will continue to use them until they wear out again.

Member: Do you have any serious trouble with a scorched flavor in the cream or in the butter? I am using the same method, practically, and sometimes I find, if I churn the cream quickly, I have scorched flavor in the butter; but if I hold the cream over night I have not had

any complaints on that score. I would like to ask Mr. Miller's experience in regard to that.

Mr. Miller: We have no trouble but we hold the cream over night; we pasteurize in the evening and afternoon and churn next morning. I have done no churning immediately after cooling.

Member: Sometimes I would not want to work Sundays and I would churn Saturday afternoon or evening, and when I did that I would have a scorched flavor in the butter.

Mr. Miller: You must let the starter have time to do its work.

Mr. Hagedorn: I understood the gentleman to say if he pasteurized at 185 degrees he killed only a few germs. I am not quite sure I can agree with him on that point. Two or three weeks ago I saw an experiment carried out where the cream was pasteurized at 170 and we destroyed 99% of the germs.

Mr. Joslin: I am glad Mr. Hagedorn brought up that point; I intended to do it myself. I believe Mr. Miller made that statement and there occurred to me a statement made by Dr. Russell at the Dairy School. We all know Dr. Russell, of Wisconsin, I believe the most noted bacteriologist in the country. He said a temperature of 140 degrees held ten minutes would destroy any disease producing bacteria. I am not sure of the statement he made in regard to the continuous process, but I am sure we have all understood that a temperature of 160 to 170 degrees would kill a large percentage of bacteria.

Mr. Miller: I was speaking of the continuous process, the one we employ and I know with a lower temperature with a Jensen pasteurizer we did not get results.

Member: You will find if you run your pasteurizer at the full capacity, as it was sold to you, you will not get the best results. If you have a twelve thousand pasteurizer and run at one thousand or twelve hundred you will get better results than if you run it full capacity.

Member: That is one thing I want to say Amen to. Here is another thing, we do not always know exactly what goes on at the creamery. You tell the buttermaker to pasteurize at 180 degrees and if you go to the creamery you will find he is pasteurizing at 140 or 145 degrees. We do not want to go after the buttermakers too hard but if they are careless along those lines we are apt to suffer a loss. I find I have to do things once in a while myself in order to keep a pretty close tab on my buttermaker.

Mr. Miller: I would not keep a buttermaker that did not obey my rules.

Mr. Haven: I want to say that Mr. Nelson, of La Crosse, Wis., invented the first pasteurizer that was invented in the United States. He afterwards went to Denmark, France, Germany and England for five years and studied the subject of pasteurization. I met him at La Crosse two years ago and he said, "Mr. Haven, when I first started in I knew all about pasteurization, but after studying in those countries that are very particular about the quality of their butter, I am willing to admit that I do not know anything about pasteurization today." He wanted to emphasize to me the importance of accuracy.

Mr. Sondegaard: It is the winter flavor that we see a little of in the market at this time. That is not necessarily from poor cream but it is cream and milk a little old, and I feel sure from my experience with

pasteurization, that that wintery flavor can be overcome to a great extent by pasteurization. We have been seesawing a little one way or the other according to the two methods of pasteurization. Mr. Miller heats it a little high, evidently he has a small machine and is heating his cream high, and I feel sure he can do it to very good advantage. I have seen some of the Minnesota boys who have done that with a small machine and it did not show a burned flavor, while with the intermittent system it is not necessary to go so high but be sure to get rid of the wintery flavor before you quit, whatever process you use. If you use the intermittent system or pasteurize in the vat pay special attention to the mist that comes up from the vat after the cream is heated. Keep the vat closed until the temperature is 100 in order to heat a little quicker, then open the cover and heat to 145 or wherever you want to go, and do not close the cover until the wintery flavor is all out of the cream, and you who pasteurize will know when that is, and after you have been pasteurizing long enough so the cream begins to smell nice and the aroma is nicer than it was at the beginning, you can begin to cool. You can get rid of the wintery flavor and increase the quality of the butter and have a more uniform quality, and that is what we must have. We must have a uniform quality, we must have more uniformity in butter on the market. A lot of butter is like a chain, it is not really stronger than its weakest link, and if a buyer finds a certain churning not so good he will base his price on that to a certain extent.

The Chairman: If we have pasteurization finished, I would like to come back to the poor centralizer. I want to say to my centralizer friends that seem to be somewhat hurt at some things we have said, I believe I have said as many things as anybody and if I have said anything wrong I want them to tell me of it. If I have accused the centralizer of anything he has not done I will take it back. We must be misinformed and we would like to have the centralizers tell us of our mistake. The centralizers have a right on the earth, to be sure, but I believe that the centralizers have had a whole lot to do with the present condition of butter all over the country. It may be that they do no more than the rest of us, but just the same if he knows more he is not practicing what he should; he should have been smart enough to have kept the quality of the cream in the country up and then take that good cream in and produce something so much better than we could that they would be ahead of us as far as they are now. That is the way it strikes me. If I have said anything that is unjust let me know and I am ready to take it back but if not I am here to back it up. I would like to hear from the centralizers. Mr. Stafford you are a centralizer, why don't you get up and tell us something?

Mr. Hagedorn: I do not like to get up but it seems almost necessary. I have had the fortune, or misfortune, to be with a centralizer four years. I am not a centralizer, I am not even making butter, not today at least or any other day at present, but I want to say for the benefit of the centralizers and everybody else here, had it not been for the centralizers in the state of Michigan we would not have had very much in the shape of dairy business, because everybody was sound asleep and they remained that way until the centralizers came and woke them up. They have been going out in the country where there were only a few cows and encouraged the farmers to go into dairying,

and after a while we had there a co-operative creamery or some individual harvest something from the centralizers hard work. We have seen where they have been crowding, crowding out into the fields right and left, and everybody, the buttermakers, the creamerymen and the farmers, have been waking up and seeing they must do something. I believe the centralizers have done their duty, they have a mission in this state as well as in any other state, but I know in Michigan they have done a great deal; they have roused the dairymen from their sleep and shown them what to do. Think that over and see if you cannot see that the centralizers have been a pretty good thing after all, with all the bad faults they have.

Mr. Stafford: When I made butter for a local plant I said many times I never would work for a centralizer. Gentlemen, we can learn something when we go into a centralizing plant. In regard to grading cream, I am pretty sure that the centralizers will be glad to that if the other fellows will. We get some stuff at Port Huron that we can pasteurize and we can add a starter to it and then we could take it out and drag it around the barn it would improve it, but we have to take it because if we do not somebody else will. I think the centralizers stand ready to begin grading as soon as the others. I used to feel as bitter towards the centralizers as anyone here, but they are not such bad fellows after all but they want their share, of course, and I presume they will get it.

Mr. Hatch: I always labored under the impression that the centralizers were bad sort of people, robbers, thieves, etc., trying to put the small competitor out of business, but as it happened last Spring I went down and visited near a centralizer and became acquainted with the manager of the plant and the buttermaker and found they were pretty nice boys. This man sitting by me, Mr. Emmerson, is as fine a man as you could meet and honest in his business. Some of you might have got the impression that he is a bad sort of fellow, but he is not, I can vouch for him, and I do not think he would do anything that would injure his fellow men.

Mr. Hagedorn: It is not the man we are after, it is the system.

The Chairman: I never saw one that had horns.

Mr. Hagedorn: It is just this much, dog eat dog.

The Chairman: I do say this and say it again that I have had one or two competitors in the local creameries that I believe were worse than a centralizer dare be. Now then, what are we going to do with such fellows?

Mr. Vanderboom: Before you get all the centralizers killed, I have been requested to make an announcement, that is that the centralizers, buttermakers and cheesemakers are expected to be at the Washington Theater tonight and also at the banquet afterwards at the Wenonah Hotel.

The Chairman: Before dismissing you, I would like to meet the Board of Directors of the Creamery Managers and Owners Association tomorrow morning at 9 o'clock at the Secretary's booth in machinery hall. Are there no further announcements. If not we will stand adjourned.

DAIRY BY-PRODUCTS.

ADDRESS DELIVERED BY COLON C. LILLIE, AT MICHIGAN DAIRYMEN'S ASSOCIATION AT BAY CITY IN FEBRUARY.

Dairy by-products may be considered under three heads. First the by-products of the dairymen or dairy farm. Second the by-products of the creamery. Third the by-products of the Cheese factory.

SKIM MILK.

On the Michigan dairy farm today the greatest by-product of the dairy is skim milk. About 10 or 15 years ago in most localities the milk was hauled to the creamery and skimmed there and the skim milk was sent back. Today the majority of the milk is skimmed upon the farm and the cream is sent to the creamery, and I think the majority of farmers will agree that the skim milk produced upon the farm is of greater value than that produced in the creamery. He can feed it with less waste. He is sure that when he skims his milk upon his own farm that he is not spreading disease, nor having disease introduced into his own herd. From the skim milk from diseased herds, and the practice of using the hand separator upon the farm in my judgment has done much to prevent the spreading of contagious diseases.

Various estimates have been placed upon the value of skim milk. One man will tell you that it is worth 20 cents per hundred, another man will tell you that it is worth 30 cents, and still others have put the feeding value of skim milk as high as 50 cents per hundred pounds. Really the value of skim milk depends upon the value of the animal to which it is fed and also upon the method of feeding. If one is growing registered calves or pure bred pigs he can figure that skim milk is very valuable if he figures that the extra price which he gets for registered stock is due to skim milk. This, however, is not a reasonable way of figuring. The value of skim milk should be determined by comparing it with other foods as a basis. Skim milk is not a balanced ration. The nutritive ratio is narrow, or the proportion of protein to carbo hydrates is as one to two, which is a narrower ration than is needed even for young and growing animals, consequently in order to get the greatest feeding value out of skim milk it must be fed with some other food that is richer in carbo hydrate than the skim milk, and here is where the average farmer makes a great mistake. He does not take pains enough to mix other foods with skim milk.

SKIM MILK FOR PIGS.

If you feed pigs upon skim milk alone you will not get satisfactory results. If you feed skim milk in connection with corn you can get better results than you can if you feed either one alone, simply because both of them fed alone are an unbalanced food, and when mixed together you can make a balanced food. Science and practice both show

that skim milk should be fed growing fattening pigs in about the proportion of 1 pound of corn to 3 pounds of skim milk. In this way we get very nearly a balanced ration and get the largest per cent of assimilation from the two foods.

SKIM MILK FOR CALVES.

When we feed skim milk to calves of course we cannot feed corn as well as we can when it is fed to pigs because the corn does not mix in the ration for the calves as well, and some other food must be selected which will take the place of the corn. Experiments have been made with a great many different foods, but pure flax seed meal is the ideal food to feed in connection with skim milk. This food contains about 30% of fat and when a small amount of it is mixed with the skim milk it balances up the ration by taking the place of the fat originally in the milk and a question arises how much flax seed ought to be fed to a calf in connection with the skim milk. It doesn't take so very much of it. Better results will be obtained if the flax seed is cooked and made into a gruel. A pint of flax seed meal will make two gallons of gruel and a gill or a little more of the gruel is a sufficient amount to put into the milk for each calf at a feed. When fed in connection with flax seed meal gruel, skim milk makes a balanced ration and is a most excellent and valuable food for young growing calves, but on the other hand if it is fed alone it is a poor food and makes unthrifty calves. If fed alone for any considerable length of time and fed liberally indigestion is almost sure to be the result.

BY-PRODUCTS OF THE CREAMERY.

The by-products of the creamery are butter milk and sometimes skim milk, but it is rare now that the average creamery has any skim milk to dispose of as a by-product. The farmers are beginning to think so much of skim milk that it is rare that the creamery has anything to do with it, and it is returned to the farm. The creamery however has a by-product in the form of butter milk which is valuable if it can be properly disposed of. The feeding value of buttermilk is almost identical with that of skim milk. It is worth all the way from 20 cents per hundred pounds to 50 cents per hundred pounds, depending upon what food it is fed with and to what class of animals it is fed. With many creameries the buttermilk is almost an entire loss. In many instances it is sold to some nearby farmer for a mere pittance, a few cents a hundred usually. I have known instances where buttermilk was given to a person if he would only remove it from the creamery and get it out of the way. Other instances are on record where creameries get 5 and 10 cents per hundred pounds, not one-half of its feeding value.

Other creameries have gone into the hog feeding business for the purpose of disposing their buttermilk. By properly mixing corn with the buttermilk it is equal to skim milk and its full feeding value which is at least 20 cents per hundred pounds can be obtained.

Where the creamery is located in a city or near a large town with a little effort on the part of the creamery management a good trade can be worked up in buttermilk in the city for a human food, and it is indeed a valuable food, not only from the standpoint of the food nutri-

ment which it contains, but buttermilk is a valuable food when it is considered from a health standpoint. The modern creamery today pasteurizes the cream, destroying all germs, and then a pure culture starter is introduced to ripen the cream, consequently the buttermilk contains the pure culture or lactic acid bacteria. Now it is a fact the best medical authorities advise buttermilk as a diet for a great many people. The introduction into the elementary canal of lactic acid bacteria is beneficial to health because being introduced in large quantities these bacteria overcome the bacteria that naturally inhabits the elementary canal and which are detrimental to health, and the growing habit of consuming buttermilk from this standpoint is one to be commended and one to be encouraged.

It seems to me that a creamery located within a marketable distance of a good sized town ought to go to some considerable expense to place this by-product of buttermilk upon the market in a satisfactory and sanitary condition. I believe buttermilk should be bottled and sold just the same as sweet milk. I don't believe it ought to be handled in an open can in bulk any more than sweet milk ought to, and it seems to me that if people understood about these things that they would be willing to pay a better price for bottled buttermilk than they would for buttermilk that was sold in bulk. I believe a most excellent trade can be worked up in any town on this product if it is only placed before the consumer in the proper light. It might take some little amount of advertising in order to make the people understand the true value of buttermilk, but just as soon as they did they would be willing to pay a better price for a better product placed upon the market in a better way.

The Iowa Experiment Station has brought out a new buttermilk product which they call "Lacto." It is simply buttermilk with added cream, flavoring, etc., and frozen and served after the manner of ice cream. The Cooperville creamery will attempt to put such a product on the market the coming summer.

COTTAGE CHEESE.

Where a creamery has skim milk as a by-product large amounts of it can be disposed of if it is made into cottage cheese, and cottage cheese can be made from buttermilk as well as skim milk. Indeed, some people prefer cottage cheese made from buttermilk like to that made from skim milk. It is finer grained and is certainly more sanitary for the cream was pasteurized before churning and pure culture added, and it should be more free from undesirable bacteria. When people come to fully understand the food value of cottage cheese and its health producing properties much more of it will be consumed in place of higher priced animal products. The consumption of cottage cheese made from buttermilk will help a man's pocket book and his stomach at the same time.

After the curd has been removed from buttermilk to make cottage cheese the whey can be frozen after flavoring to suit the taste and makes a most delicious ice.

BY-PRODUCTS OF THE CHEESE FACTORY.

The by-product of the cheese factory is whey. Some people consider whey of little value as a food product for any kind of animals but in this they are mistaken. Whey has quite a considerable food value. Indeed experiments show that whey is worth at least one-half as much as skim milk when fed to growing pigs or to growing calves. I will admit that a great many people do not get very much value out of whey because they do not feed it as they ought to feed it. This question of balancing a food seems to be one that is not readily understood by everybody and yet it is a very simple matter. Now while in the case of skim milk you remove the fat and leave the nitrogenous part of the product, making a food which has a narrow nutritive ratio, the result in whey is exactly the reverse, you extract from the milk the nitrogenous part but when cheese is made this part is used and some of the fat is left, leaving a food that has a wide nutritive ration, that is, it has carbo hydrate in excess of the protein, and it is an unbalanced food, but it is unbalanced from a different standpoint. It contains more carbo hydrate than it should contain in proportion to the protein, while skim milk contains more protein than it should in proportion to the carbo hydrate. Now with either one of these products in order to get the greatest feeding value out of it it must be supplemented or fed in connection with another food. In the case of skim milk as I have already said you want to feed a food which is rich in fat, but with whey which already contains an excess of carbo hydrate we should feed a food that is rich in protein, consequently a food like oil meal would be most excellent to feed in connection with whey. Of course, oil meal is a product taken from flax seed but in this the flax seed has been ground and the fat taken out to make the commercial oil of commerce and the residue of that portion of the flax seed which is rich in protein remains. Now this would not be the kind of food at all to feed in connection with skim milk, but it is just the sort of food that ought to be fed in connection with whey to make a balanced ration, and when whey is fed in connection with a food like this it is a valuable food and well worth saving. While skim milk and corn makes a most excellent balanced ration for pigs, whey and corn do not make a balanced ration and some food should be fed in connection with it, like oil meal or tankage, or gluten feed, or buckwheat middlings, which are all rich in protein, and will therefore help narrow the nutritive ratio and make whey a balanced ration for growing animals. When this is done you can get the full feeding value of whey.

Competition is such in almost any kind of business today that one must look after the by-products of that business carefully and get all out of them that there is in them if they want to make any great amount of profit. It is said that the big packers in Chicago would make little or no profit in handling the different beef products if it was not for the by-products. The packers agree that fertilizer, bristles, hair, and all of the by-products of the slaughter house are practically clear gain and go to make up quite a portion of the profits of the business. And so in the dairy business, competition is keen and one should get the most out of the by products if they expect to make very large legitimate profits in the dairy business.

STABLE MANURE AS A BY-PRODUCT OF THE DAIRY FARM.

The most universal by-product of the dairy farm is the stable manure resulting from keeping the herd of dairy cows and the necessary young stock to replenish the dairy. This is not usually considered in discussing this topic and yet it seems to me that it properly belongs under the head of dairy by-products. Certainly it belongs under the head of dairy farming by-products and this would also be a by-product which would be universal and apply to all farms. Scientific men have made various estimates of the value of the manure produced by a cow in a year. They figure the value of the nitrogen, phosphoric acid, and potash which she produced at market prices and some of them I think have told us that the manure from a dairy cow would amount to as much as \$25.00 per year if we had to put these fertilizer ingredients in the open market in the form of commercial fertilizer. Of course, we practical dairymen know very well that the immediate benefit, at least, of the result from manure from keeping a dairy cow does not amount to \$25.00 per year. We realize, however, that there is a great amount of benefit to a dairy farmer from this product, and whether it is worth \$25 per year or not, we know that dairy farming as a general thing is getting better and better every year. The crop producing power of it increases from year to year and it comes largely from the fact that the crops that are produced upon the farm are fed out upon the farm, and the manure returned, thus keeping the soil filled with organic matter, which is one of the very essential things in building up, improving, and even in maintaining the fertility of the soil. A casual observer can tell in almost any community where this kind of farming has been done as compared with grain farming pure and simple. The grain farm is gradually getting poorer every year while as a general thing the dairy farm is getting better. One could go on and elaborate on this almost indefinitely, but I think it is well understood at the present day by everybody. So too we might discuss the proper handling of this by-product of dairy farming but I think the concensus of opinion now is that the proper way to apply this is to remove it from the stable directly to the field and spread it, and the opinion is growing that the nearer the surface we keep this manure the greater benefit we are going to get from it. Top dress all you can. In some instances it is not practical to top dress; for instance, if the manure contains too much coarse material as straw and shredded corn fodder, and then again on heavy clay it may be advisable to plow the manure down for the effect on the physical condition of the soil making it more mellow and friable.

Stable manure is well worth talking about at a dairy farmers meeting. None of us have enough of it. All wish we had more and in the future it will be of greater importance still. Properly balanced with commercial fertilizer it is the foundation of prosperity not only for the dairy farm but for any farm.

CHEESE MAKING FOR THE HOME MARKET.

T. A. COOK, BRANT, MICH.

Mr. Chairman, Ladies and Gentlemen: The subject that has been assigned me is "Cheese Making for the Home Market."

This, without doubt, is an old story with most of you.

However, I will endeavor to illustrate to you in a few words my idea of how cheese should be made for the home market, or in other words,—the soft, Michigan variety. This in my opinion has not received the distinction it should from our cheese trade.

It is just as much worthy of distinction in its class as Cheddar, Swiss Brick, or any other style of cheese. It has, however, been much criticized by some of our makers who have called it whey soaked and sloppy stuff, and of course not without reason in some cases.

However, I will say to you, Mr. Chairman, that I consider it requires just as much skill to make a good, soft cheese, as it does a Cheddar. What I call a good, soft cheese, is one that is somewhat porous, and of medium soft texture, and that will not go down in the case after being cut. I have seen a number of good Canadian Cheddar makers fall down in making this kind of cheese, and I say this with all due respect to these makers, as I myself am a Canadian, and served several years in making cheese in Ontario. Some of them make the great mistake that soft cheese do not require nearly as much pressing as a Cheddar. I consider that they need almost as much.

I base my arguments on 20 years experience over the vat, 15 or more of which have been spent making Michigan cheese.

I make my cheese in this way. In the first place I try to get my patrons to bring the milk in good condition. This being the first requisite in making a good cheese, and especially the soft variety, as there is not the chance to eliminate gases as in Cheddars.

When the milk is nearly in, steam is turned on the vat heating the milk to 86, or 88 degrees, fahrenheit. After the required temperature is reached the color is added, $\frac{1}{2}$ to $\frac{3}{4}$ of an ounce per M. Then I add rennett at the rate of about 4 oz. per M. In about 25 to 30 minutes it is ready for the knife. When curd is sufficiently coagulated to split clean before the finger, the cutting is commenced using the horizontal knife first lengthwise. The perpendicular knife is then used both ways. I then go around the vat and remove any particles of curd with the hand that may adhere to the side of the vat, after which it is gently stirred with the hands for about 5 minutes.

The steam is then turned on slowly usually taking about $\frac{1}{2}$ hour to cook to 102 degrees,—the whole mass being stirred with the rake during this process and for about ten minutes after steam is turned off. With milk in good condition, it is then left in the vat for 2 to $2\frac{1}{2}$ hours, being stirred at intervals to keep from matting.

We depend almost entirely on the sense of feeling for dipping, and do not use the hot iron except in rare cases. Our curd sink is the flat bottom kind, with rack and strainer. After dipping into the sink, the

curd is thoroughly stirred from 10 to 15 minutes, the salt then being applied at the rate of 2 to 2¼ lbs. per M., making three applications of it to the curd. The salt being thoroughly incorporated, curd is then left standing for a few minutes, or until the whey starts again. The hoops being ready, curd is then dipped in, putting a pail to each hoop, and repeating the process until we have the required amount in each hoop, and right here will say that I very seldom hurry this part of it, giving the curd time to "firm" before putting on the pressure, and this is done very gradually at first, or until after we have bandaged. Cheese are then left in press until following morning.

Just a word about marketing the cheese. My cheese are kept in the curing room 15 to 25 days, depending largely where I intend shipping, although I sell principally to the retail trade. To this class of trade I sell in lots of 1 to 25 boxes, and I have tried to educate my customers in the right way to handle them, trying to impress upon their minds that the cheese requires some care and attention. For instance, if I sell a man 2 or more cheese, they are graded and marked according to age so he will know which to cut first.

In this way I have been able to build up a very satisfactory trade, and one that is profitable to all concerned.

THURSDAY AFTERNOON SESSION.

Meeting called to order at 3:30 p. m., by President Marston, and held in the small room of machinery hall.

The Chairman: We will now have the report of the committee on resolutions.

RESOLUTIONS ADOPTED BY THE EXECUTIVE COMMITTEE OF THE MICHIGAN DAIRYMEN'S ASSOCIATION, IN TWENTY-SEVENTH ANNUAL CONVENTION ASSEMBLED.

Whereas, During the past year this association and the cause of pure milk has suffered a deeply regretted loss in the untimely death of a member who devoted the best efforts of his life the work, be it

Resolved, That it is the desire of this committee and the association to express its gratitude and respect for the great good accomplishments to humanity by Ira O. Johnson, as a citizen and dairyman; and that a copy of these resolutions be sent to his bereaved wife, and faithful help-mate.

Whereas, The officers of this Association, co-operating with the citizens of Bay City and the organization of business men have labored faithfully and efficiently to make this twenty-seventh annual convention a success that it is, therefore be it

Resolved, That a vote of thanks be extended to our officers and to the city of Bay City for their efficient work and hospitable treatment of our members.

Whereas, It has become a common practice for inefficient and inexperienced men to buy cream and butterfat in this state, therefore be it

Resolved, That this association use its best efforts to secure the enactment of a law providing for the examination and licensing of every person operating a Babcock test, in the purchase of cream or butterfat for commercial purposes.

Whereas, There is a general complaint arising from members of this organization regarding the character of the inspection made by the present staff of Dairy inspectors, in our dairy and food department, due to a lack of knowledge of dairy and creamery and cheese factory work, be it

Resolved, That this Association recommend that the dairy inspectors of the dairy and food department be selected with strict regard for their experience and training in the dairy industry, in order that the long existing high standard of inspection be maintained and that the interests of both producer and consumer be thereby efficiently protected.

Whereas, The welfare of the dairy industry will be vitally injured by the proposed removal of the ten cent tax on colored oleomargarine, be it

Resolved, That this organization go on record as being opposed to the manufacture and sale of oleomargarine colored as butter; but that it expresses no opposition toward the manufacture and sale of oleomargarine as such.

Whereas, This Association is in favor of a butterfat standard in butter instead of the moisture standard, be it

Resolved, That a copy of these resolutions be sent to the Dairy Department, U. S. Department of Agriculture at Washington, D. C.

Whereas, An equal measure of benefit to all essential interests should result from whatever degree or grade of tariff policy the general government may adopt and

Whereas, The prompters and supporters of our present so-called high tariff policy have repeatedly and publicly asserted and argued that the benefit to be derived by farmers from such high protective policy comes from the benefits to them of our protected home markets for farm products, and

Whereas, Those who believe in the true and real reciprocity relations with foreign countries, as well as those who favor equal measure of benefits from government policies, whatever they may be must condemn and reject the present proposed plan of trade exchange with Canada as being non-reciprocal and must, because of admitting free of duty to our home farm produce markets all of the immense and varied agricultural products of the vast empire at the North, and which stretches along our northern boarder from ocean to ocean, while at the same time insignificantly small return benefits are given our farmers for their sacrifice, and

Whereas, The reported plan of so-called reciprocity with Canada must result in free trade depression for the farmer and high protective benefits to the manufacturer, therefore be it

Resolved, By the Michigan Dairymen's Association consisting of representative dairymen and congressmen from all parts of the state, that are senators in congress be urged to use their influence and votes to prevent the ratification of such an unjust and unfair measure, and that our secretary be instructed to telegraph our senators at Wash-

ington expressing to them our strong convictions respecting this measure.

On motion, duly seconded, the resolutions were adopted as read.

The Chairman: Next is report of the election of officers, the election having been conducted by the Australian ballot system, and votes counted by tellers appointed for that purpose.

The following officers were reported elected to serve for the ensuing year:

President—T. F. Marston, Bay City.

Vice-President—F. H. Vanderboom, Marquette.

Secretary-Treasurer—E. S. Powers, Hart.

DIRECTORS.

Wm. Bechtel, Caro, Chairman.

R. A. Frary, Lapeer.

C. R. Webb, Chesaning.

Claude Grove, Fremont.

Henry Rozema, Fremont.

Mr. Claude Grove told briefly of the benefits of the scoring contest. As there were two parties participating in the score tied for first place, the Association was asked to take some action as to how the cups would be given. The matter was discussed pro and con and finally it was decided to make the distribution by ballot, Governor Warner and Mr. L. A. Freeman being called on to represent the contestants. Those who tied for highest score were Floyd Hendershott and Chas. Bosch, and the cup was awarded Mr. Hendershott, as first prize, Mr. Bosch receiving second. John Batten and C. M. Portch tied for third, Mr. Batten winning and was awarded the third silver cup.

Mr. Grove: The cheesemakers have taken no interest in the cups and while three entered the contest only one of them lived up to the rules so two were disappointed, so I am not in favor of awarding the cup as it is not a competitive contest.

Mr. C. R. Webb: Since this man has complied with the rules and the others had the same opportunity to do so, I believe the cup should be awarded to the one contestant.

A vote being taken on this, it was decided the cup should be awarded to the winner in the cheese scoring contest, Mr. ———.

The scores were then read as follows:

SCORES OF BUTTER, CHEESE, MILK, ALSO PREMIUMS.

Bay City, Mich., February 21-22-23-24, 1911.

No.	Maker and address.	Score.	Premium.
1.	C. M. Partch, Armada	89½	
2.	F. B. Dent, Hanover	88	
3.	B. A. McGill, Traverse City	89	
4.	L. E. Seeley, Imlay City	88½	
5.	John Batten, Avoca	89½	
6.	F. McNeil, Fostoria	89½	
7.	Henry Ayres, Elsie	91	\$4 00
8.	Andrew Vivian, Monroe	94	10 00
9.	Fred Plumbhoff, New Era	93½	8 50
10.	H. G. Swanson, Grant	93½	8 50
11.	Fremont Creamery Co., Fremont	91½	5 50
12.	Irvin W. Ellis, Washington	93	8 00
13.	Coloma Creamery Assn., Coloma	92½	7 00
14.	H. Harvat, Leroy	91½	5 50
15.	B. Hillman, Metamora	87½	
16.	Remus Co-operative Creamery, Remus	89½	
17.	Bay City Creamery, Bay City	88½	
18.	August Smith, Burnips Corners	91½	5 00
19.	Frank Jankoski, Hilliards	95	12 00
20.	Unionville Creamery Co., Unionville	90½	3 00
21.	W. A. Sauber, New Haven	92½	3 00
22.	Vasold Bros., Freeland	88	
23.	Jesse W. Cobb, Lawrence	91½	4 50
24.	Windsor Bovee, Henderson	91	4 00
25.	Chas. Bosch, Jamestown	91½	5 50
26.	Soren Peterson, Reading	89	
27.	John Milkamp, Fremont, R. 5	92	6 00
28.	Henry H. Faber, Zeeland	91	4 00
29.	C. G. Erwine, Norway	91½	5 00
30.	R. A. Butler, Berville	90	2 00
31.	J. A. McDonald, Breckinridge	87½	
32.	Wellington Best, Vermontville	92½	7 00
33.	J. B. Gilbert, Pontiac	90½	3 00
34.	S. G. Coffin, Manrovia, Ind	89½	
35.	S. B. Cooksley, St. Joseph, Missouri	91	no premium.
36.	Walter Hall, Owosso	92½	7 00
37.	O. A. Ellis, Rochester	90½	2 50
38.	Clyde E. King, Concord	89	
39.	H. J. Sass, Blanchard	92½	7 00
40.	Chris. Liebum, Orleans	92½	7 00
41.	Russell Powers, Ravenna	93	8 00
42.	P. C. Mossner, Sparta	88½	
43.	John Konkle, White Cloud	88½	
44.	Laverne Cobb, Clarks Lake	90½	3 00
45.	I. A. Shaver, Omer	88½	
46.	Fred Koch, Grant	93½	9 00
47.	F. P. Minnick, Charlotte	87½	
48.	John Vutgeveen, Holland	92½	7 00
49.	John A. Weber, Grass Lake	91½	5 50
50.	Hugh M. Walker, Bloomingdale	92½	6 50
51.	I. H. Riley, Vassar	90½	3 00
52.	John Ebmeyer Dorr	91	4 00
53.	W. S. Vernon, Ewen	87½	
54.	R. F. Frary, Lapeer	88½	
55.	M. Jensen, Merrill	88	
56.	Floyd Hendershott, Parma	93	8 00
57.	Ray E. Sunderlin, Sunfield	90	2 00

No.	Maker and address.	Score.	Premium.
58.	Arthur S. Nunnelly, Portland.....	90	\$2 00
59.	Chas. Kemmer, Allegan.....	90	2 00
60.	Louis Wehrle, Marshall.....	89½	
61.	Geo. S. Spaulding, Burgoon.....	88½	
62.	F. W. Shaw, Goodrich.....	90½	3 50
63.	Geo. P. Sunday, Constantine.....	91½	5 50
64.	John Kloosterman, Clarksville.....	90	2 00
65.	Jas. Bivens, Hubbardston.....	91½	4 50
66.	P. G. Riker, White Pigeon.....	90½	3 00
67.	Bert Shseinheksel, Fillmore Center.....	89½	
68.	H. T. Reynolds, Lucas.....	89½	
69.	W. B. Liverance, East Lansing.....	93½	9 00
70.	H. J. Bengtson, Gerra.....	93½	8 50
71.	S. R. Miles, Buchanan.....	92	6 00
72.	C. D. Lockwood, Athens.....	89	
73.	C. L. Stark, Caro.....	89	
74.	D. A. Hoodamaker, Salem.....	94½	11 00
75.	Eric Dumuth, Albion.....	90½	3 00
76.	William Dubendorf, Coopersville.....	92½	7 00
77.	B. F. Hadley, Marlette.....	91	3 00
78.	John Myer, Vriesland.....	91½	4 50
79.	William Rothrock, Hadley.....	90½	2 50

DAIRY BUTTER.

No.	Name and address.	Score.	Prize.	Amount
1.	Ira K. Reid, Cass City.....	91½	1st.	\$8 00
2.	Geo. H. Kimball, Jr., Pontiac.....	88½		
3.	P. D. Long, Grand Rapids.....	90½	2nd.	4 00

FANCY DAIRY BUTTER.

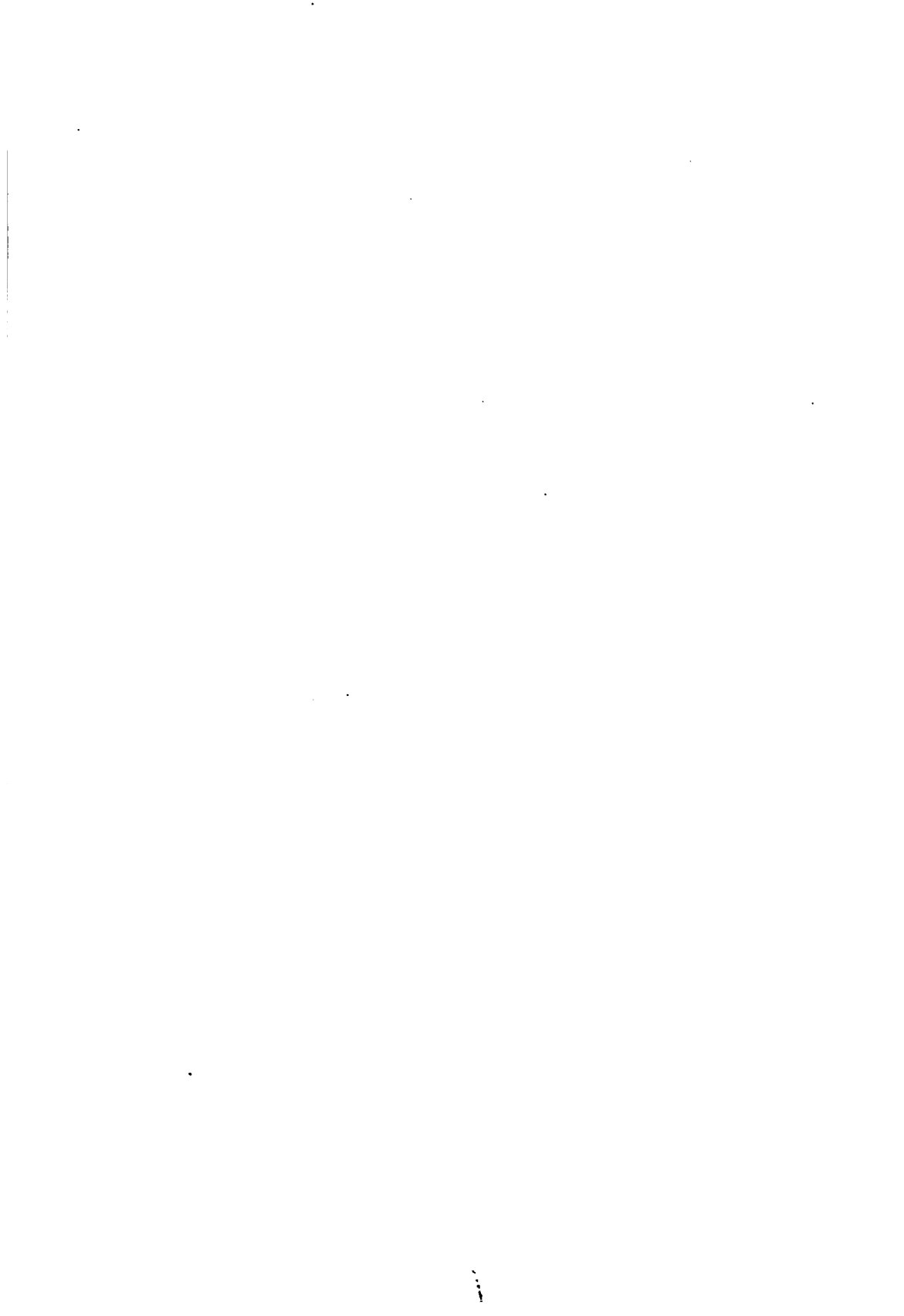
No.	Name and Address.	Prize.	Amount.
1.	C. E. Renbarger, Niles.....	1st.	\$5 00
2.	Walter Hall, Owosso.....	2nd.	3 00
3.	Windy Acre Farm, Inc., Homer.....	3rd.	2 00
4.	Archie R. Pierce, Scotts.....	4th.	

CHEESE.

No.	Maker and address.	Score.	Premium.
1.	Irving Reist, Maple Rapids.....	87	
2.	L. R. Sigafosse, Montgomery.....	88½	
3.	W. A. Dear, Perrinton.....	87½	
4.	William W. Reed, Bancroft.....	93½	\$5 75
5.	August Oldenburg, Owendale.....	95½	9 75
6.	Conrad Schriener, Frankenmuth.....	89	
7.	Fred M. Warner, Powers.....	93	6 00
8.	Fred M. Warner, Ida.....	87	
9.	Fred M. Warner, Kilmanaugah.....	94	7 50
10.	Fred M. Warner, Novi.....	95	9 00
11.	Fred M. Warner, Franklin.....	93½	6 75

There being no further business the meeting adjourned.

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